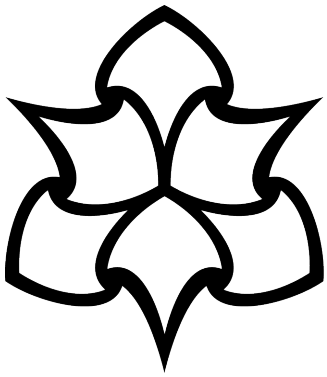

Sustainable Supply Chain Management: A case study of a sustainable chocolate supply chain network.

Kate Mc Loughlin

A thesis submitted in partial fulfilment of the requirements of the Manchester Metropolitan University for the degree of Doctor of Philosophy

Department of Operations, Technology, Events and Hospitality Management, Business School

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Abstract

The purpose of this thesis was to understand how sustainable supply chain management processes are managed in practice given the variations in sustainability principles. The Global Supply Chain Forum's Supply Chain Management Framework was used to focus the study by examining how its elements (network structure, management component and business processes) interact with sustainability. There is evidence of a paradigm shift as evidenced in how the two concepts of sustainability and SCM merge. This justified the framework's elements being re-examined in the context of sustainability to understand how the elements change. However, there is no body of research that examines processes unique to SSCM. Furthermore, knowing how to manage these in practice, required an understanding of why and how different stakeholders behave. This needed a network view of multiple stakeholders, but limited research exists on end-to-end supply chain networks. Moreover, there is limited research on the management of diverse sustainability principles and the coordination of multiple stakeholders engaged in these.

A single explanatory case study of a network and its nodes was selected as a method to explain how stakeholders behave through the proximity of network determinants. Two units of analysis (the network and the organisation) were used to examine organisational orientation and stakeholder network theory. This resulted in theoretical propositions and conceptual framework that explained a spectrum of sustainability principles, a model of sustainability business processes and phases of management, and archetypes of practice and complimentary typologies.

The main contributions of the research were twofold: It mapped and modelled an end-to-end supply chain network and provided a SSCM framework. In doing so, it built theory by offering a model of key business processes in SSCM, taxonomic classes of SSCM practices, eco-centric theory, pre-competitive collaboration, concurrence, and leveraging interorganisational clusters to manipulate sustainability principles.

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List of Abbreviations

Abbreviation	*Term*
ABC	ADM, Barry Callebaut and Cargill
ADM	Archer Daniels Midland
Bn	Billion
BRIC	Brazil, Russia, India and China
BSCI	Business Social Compliance Initiative
BSR	Business for Social Responsibility
BSCI	Business Social Compliance Initiative
B2C	Business-to-customer
CDA	Critical Discourse Analysis
CDC	Centres for Disease Control and Prevention
CEO	Chief Executive Officer
CGF	Consumer Goods Forum
CILT	Chartered Institute of Logistics & Transport
CMS	Critical Management Studies
Co-op	Co-operative Group
CS	Case Study
CSR	Corporate Social Responsibility
CSV	Creating Shared Value
DJSI	Dow Jones Sustainability Index
F&B	Food and Beverage
FAO	Food and Agriculture Organisation of the United Nations
FNV	The Netherlands Trade Union Confederation
GHG	Greenhouse Gas
GRI	Global Reporting Initiative
GSCF	Global Supply Chain Forum
ICI	International Cocoa Initiative
IGD	Institute of Grocery Distribution
IPCC	Intergovernmental Panel on Climate Change
KPI	Key Performance Indicator
LCA	Life-cycle assessment
M&S	Marks & Spencer
MINT	Mexico, Indonesia, Nigeria and Turkey
Mn	Million
MNC	Multinational Corporation
Mt	Million tons
NGO	Non-government Organisation
OT	Orientation Theory
PLC	Public Limited Company
PT	Process Theory
RBV	Resource-based View
RDT	Resource Dependency Theory
RSPO	Roundtable on Sustainable Palm Oil
RTRS	Round Table on Responsible Soy
SAI	Sustainable Agricultural Initiative Platform
SCM	Supply Chain Management
SCO	Supply Chain Orientation

SDG	Sustainable Development Goal
SLR	Systematic Literature Review
SNA	Social Network Analysis
SNT	Stakeholder Network Theory
SSCG	Sustainable Supply Chain Governance
SSCM	Sustainable Supply Chain Management
SSCO	Sustainable Supply Chain Orientation
TA	Thematic Analysis
TBL	Triple Bottom Line
TCE	Transaction Cost Economics
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
UNDP	United Nations Development Programme
UNGC	United Nations Global Company
WBCSD	World Business Council for Sustainable Development
WCED	World Commission on Environment and Development
WCF	World Cocoa Foundation
WEC	World Economic Forum
WHO	World Health Organisation
WRAP	Waste and Resources Action Programme

Acknowledgements

This thesis is the outcome of Professor Hines initiative and the funded research project in Sustainable Supply Chains. My gratitude goes to Professor Hines and the Manchester Metropolitan University Faculty of Business and Law for funding my research through the scholarship programme. A very special thanks to my supervisory team, Professor Hines, Professor Nudurupati and Dr Lascelles. They have been consistently generous of their time, supportive and guiding throughout the doctoral training programme. Their supervision has been insightful and wise, always steering me on-course with excellent advice.

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Last and most importantly, I would like to express my love and very special gratitude to my family, and by extension, my close and dear friends. You all know who you are, and I am blessed because there are too many to name. However, very special thanks from the depths of my heart go to my parents, Sarah and James Mc Loughlin my man, Liam Wainwright, my sisters Karin Mc Loughlin and Amy Carswell (and their beautiful families).

Author's Declaration

The thesis is submitted in the fulfilment of the requirements of Manchester Metropolitan University for the degree Doctor of Philosophy. No portion of the work referred to in this thesis has been submitted in support of an application for another degree or qualification of this university or another institution of learning.

Word Count

The main body of the thesis (Chapters 1 – 7 inclusive, excluding tables and figures) has a word count of 97,492.

Publications

The following titles relate to publications which have previously been presented at academic conferences and symposia and can be found in conference proceedings:

- Impact of Multiple Conceptions of Sustainability on Supply Chain Management Practices: A Case Study of a Sustainable Cocoa Supply Chain
- Key sustainable supply chain processes: a conceptual framework
- Sustainable Supply Chain: Exploring What Makes Supply Chains
- Critical evaluation of epistemology in supply chain research - Qualitative case study research in operations and supply chain management.
- Key Sustainable Supply Chain Management Processes - A conceptual framework grounded in network theory.

CHAPTER 1 INTRODUCTION

This chapter explains why and how this research project was carried out. It establishes key terminology within the discipline and contextualises the research. The orientation section provides preliminary background information to place the study in the context both in discipline and practice. The justification section clarifies the focus of the study, specifying the research gap, questions and importance of the topic. The research focus section outlines the aim of the thesis, methodological design, structure, and evaluation.

1.1. Orientation

1.1.1. General Statements

Scientific evidence is stronger than ever that the earth's biological system, including its ecology and those that inhabit it, is under the greatest levels of stress ever experienced (IPCC *et al.*, 2014; Scharmer & Kaufer, 2013). Business as usual is not sustainable, therefore it has become incumbent on companies to take greater accountability of their impacts not only on its stakeholders but society as a whole. Now focal companies, those considered to hold the locus of power and decision making in the supply chain, are increasingly held accountable for the sustainable performance of the whole supply chain (Seuring & Müller, 2008b; Walker & Jones, 2012). The opportunities presented by this unprecedented engine of economic, environmental and social change are momentous but need to be tempered by realistic expectations of what the private sector can and is willing to do.

1.1.2. Background to the Research

Multiple sustainability rationales are being examined and integrated into businesses to develop supply chains sustainably. These conceptualisations capture the diverse principles and dimensions that define sustainability. However, as businesses manoeuvre towards sustainable impact and creating a sustainable competitive advantage, there is limited understanding of applying the political and practical consequences of diverse

conceptualisations. Tension exists between the extant neo-classical capitalist system of consumerism and manufacturing, and the need to find a new way of doing business. As long as the standard business model, i.e. within the orthodox economic capitalist paradigm, is driving business then the majority of the private sector will continue to perpetuate this unsustainable economic order. This thesis is for them. It seeks to understand how to manage sustainable supply chains in practice given diverse principles and provide a pathway for sustainability orientation and optimisation that captures its value.

1.1.3. Reference to Previous Studies

Within this thesis, there are several disciplines to consider from disciplinary and theoretical perspectives. The work of the Global Supply Chain Forum (GSCF), including, Douglas, Martha and Janus (1998), Croxton, Garcia-Dastugue, Lambert and Rogers (2001), and Lambert (2008), have developed a framework for supply chain management (SCM). This comprehensive framework provides three elements of SCM – network structure, management component and business processes – that explain how to manage a network of relationships. The framework has been examined in the context of SSCM conceptually and suggests further research opportunities (Winter & Knemeyer, 2013).

Regards sustainability literature, Johnston, Everard, Santillo and Robèrt (2007), Glavic and Luckman (2007), and Ahi and Searcy (2013), explain how there are multiple conceptualisations of sustainability from social science, organisational and management studies, and sustainable supply chain management (SSCM) perspectives respectively. This has led to a proliferation of SSCM definitions and conceptualisations from the "*specific foci of disciplines*" (Boons *et al.,* 2012:135). Extant SCM literature presents various insights into research fields by utilising multiple theoretical lenses (Burgess *et al.,* 2006; Shook *et al*., 2009). By extension, in SSCM literature, Carter and Rogers (2008) argue the case for building theory from multiple perspectives as each is derived from divergent disciplines. They explain that the development of sustainability and integration of social and environmental issues are conceptualised differently across the dominant research fields of management, operations and engineering. Consequently, there is now a considerable body of work from theoretical and disciplinary fields that understands why supply chains should be managed sustainably and, therefore, attention is now turning to how (Winter & Knemeyer, 2013).

1.2. Justification

1.2.1. Indication of Gap

In order to understand how to manage supply chains sustainably, several extant issues determined the research agenda. There have been limited conceptual studies that explore the integration of sustainability and SCM into a holistic and integrated model of SSCM (Winter & Knemeyer, 2013). As a result, there are several limitations to understanding how sustainability integrates with the three elements of SCM framework. Significantly, research has focused on network structure and management components. Winter and Knemeyer (2013) reported that less than 3% of the articles analysed provided a holistic conceptualisation of SSCM that fully integrated all three SCM elements with sustainability.

This research is based on three critical arguments. Firstly, this thesis argues that sustainability tenets create a paradigm shift in SCM, providing a new paradigm for SSCM that needs to comprehensively reappraise how all four elements integrate. Secondly, given the proliferation of definitions, especially across socio-economically diverse global supply chains, and the competitive advantage to be gained in how sustainability is defined, i.e. it's principles, dimensions and priorities, means that how the SSCM framework is managed in practice depends on how the supply chain is orientated. Thirdly, within the SSCM literature, the terms *process* and *practice* have been falsely used interchangeably. Given the need to reappraise the SCM elements and the lack of a comprehensive business process framework in SSCM, there is a need to provide one.

This thesis explores three theoretical themes – principles, processes and practices – with regards to understanding how sustainability is integrated into the SCM framework:

- **Principles** - The concept of sustainability includes its dimensions and principles. The focus of existing research in SSCM focuses on how to integrate the three dimensions of sustainability, i.e. economic, social and environment (Ahi & Search, 2013). This focus on the dimensional perspective has helped provide a framework for measuring performance (Seuring & Gold, 2013; Ahi & Searcy, 2015), particularly using the triple bottom line (TBL) accountancy model (Elkington, 1997). However, there is a lack of research on the principles, i.e. values, that shape how these dimensions are interpreted and applied in practice (Ahi & Searcy, 2015). Johnston et al. (2007) explain that the concept of principles has several considerations. It has

led to a proliferation of interpretations with consequently vague and un-measurable definitions and goals and a relatively modest progress against a paradigm shift to effect impact. Invested interests have modified its interpretations to drive a politically motivated agenda. There has been a failure to consider this function as a vehicle to perpetuate corporate and institutional instruments, such as a political instrument, guide to public policy and "*root causes of major threats to sustainability rather than just their consequences*" (Johnston *et al*., 2007:60).

To understand how sustainable supply chains are managed requires an understanding of principles. Principles are performative in that they are the values that determine the processes and practices that sustain both sustainability interpretations and goals. However, there is limited research on the processes and practices on how these concepts are applied in practice. Furthermore, in SSCM literature, 'process' and 'practice' terms have been used interchangeably, however for this study, it is important to clarify these concepts.

- **Processes -** Business processes are formalised sets of repetitive activities or task flows across internal business functions and between supply chain partners (Douglas *et al.*, 1998; Croxton *et al.,* 2001; Lambert, 2008; Winter & Knemeyer, 2013; Ahi & Searcy, 2015). The precedent has been established in the progenitor field of SCM of formalising sets of business process, e.g. SCM process model (Douglas *et al*., 1998; Croxton *et al*., 2001; Lambert, 2008) and SCOR model (APICS, 2018; Huan *et al*., 2004). Efforts have been made to develop similar models for SSCM using existing (Bai *et al.,* 2012) and new frameworks (Zhu *et al*., 2005; Vachon & Klassen, 2006; Morali & Searcy, 2012; Beske *et al*., 2014), however, there is no SSCM process model. Notwithstanding the nascent nature of the SSCM discipline, this thesis argues that a critical mass of research on sustainability processes exists to be able to create a comprehensive and formal model to be applied holistically across the whole supply chain.
- **Practices** - Practices are what people *actually do* in work, i.e. behaviours as a "*set of habits, customs, priorities and approaches"* unique to a community (Brown & Duguid, 2001:93). Johnston et al. (2007) argue the need to understand current practices that manifest from principles of sustainability in order to achieve sustainability goals. Ahi and Searcy (2015) argue the lack of understanding of how

the proliferation of definitions limit our understanding of how these concepts are applied in practice. Research contributions in this domain can provide a robust and independent framework of how principles affect the integration of processes in practice upon which policy and practice relative to SSCM can be developed and tested.

1.2.2. Research Questions

Against this background, the primary research question was framed:

> *How does a company manage sustainable supply chain business processes in practice given the variation in sustainability principles?*

There are several issues that affect our conceptual understanding of how sustainability integrates into SCM. How do the concepts of sustainability and SCM merge? Would this require a re-evaluation of SCM and the tenets upon which it is founded? What are the key business processes in SSCM? Given the diversity of sustainability conceptualisations and the principles upon which these are founded, how does this effect SSCM in practice? Given these issues, is it possible to provide a comprehensive SSCM model, as was the case with the precedence set by the GSCF group, that explains how to manage sustainable supply chains? Finally, given the powerful position of the focal company how does this affect how sustainability is conceptualised and managed; and what are the political and ethical implications of this?

1.2.3. Importance of Topic

Sustainability issues are of global concern and, as the private sector takes account of its role, some business leaders are taking the stage to promote the criticality of environmental and social crises that require shared responsibility and collective action. For those who want to know how to manage supply chains sustainably, it requires an understanding that the stakeholders have their own sustainability conceptualisation. This thesis provides a methodology to analyse an end-to-end network. This thesis provides clarification on how sustainability can be conceptualised and the types of practices this engenders. It also provides a framework for business processes and a model to manage them. Finally, it considers the political and ethical implications of this for scholars, practitioners and policymakers.

1.3. Research Focus

1.3.1. Aim and Objectives

The research aim is *to understand how SSCM processes are managed in practice,* by the following objectives:

1. *To explore how the concepts of sustainability and SCM merge.*
2. *To describe key business processes in SSCM.*
3. *To explain how SSCM processes are managed in practice given the variation in sustainability principles.*
4. *To draw implications of SSCM for academics, practitioners and policymakers.*

1.3.2. Design

The ideographic nature of this research is about understanding and generalising to theory the nature and character of how SSCM processes are managed in practice (Burrell & Morgan, 1985). Theory-building through case study was used to answer the research question: *how does a company manage sustainable supply chain business processes in practice given the variation in sustainability principles?* The subjective accounts of stakeholders, in a supply chain network, were the foundation of social analysis and allowed for an inductive understanding of the phenomenon to unfold.

The research strategy consisted of a literature review (narrative and systematic). The narrative review identified trends, themes, thought-leaders and keywords and position the study (Tranfield et al., 2003; Taticchi et al., 2015). Within this discourse, the GSCF's SCM framework was used to explore how the concepts of sustainability and SCM merge. It also provided a management model to capture key business processes. A systematic literature review was carried out to map key sustainability business processes (Tranfield *et al.*, 2003; Miemczyk *et al*., 2015; Taticchi *et al.,* 2015). The findings also led to the sensitising theoretical concepts on stakeholder network theory (SNT) and orientation theory (OT) developed to understand the themes of principles, processes and practices.

The case study selected was a sustainable chocolate supply chain network and its nodes (commercial companies) that allowed the examination of the thematic and theoretical sensitising concepts (Blaikie, 2009). Data gathered in the case were analysed using thematic (Braun & Clarke, 2006; Sobh et al., 2006), social network (Wasserman & Faust, 1994) and

critical discourse (Fairclough, 2005) analytical tools. It did so by mapping a sustainable supply chain network and analysing the nodes and relationships among them. A conceptual framework of how to manage sustainable supply chains was created as a result of theoretical and empirical findings. Based on theory development, eight propositions are presented that explain the causal relationships between concepts. A taxonomic table brings together the theoretical and conceptual schemes identified from patterns in the data to establish descriptions of practice archetypes and allow the findings to be tested in future research. Finally, there is a nomothetic aspect to the framework where a systematic protocol was used to capture and describe SSCM processes.

1.3.3. Setting

The food and beverage (F&B) sector was selected as the research context. There is ample evidence in the literature (Appendix IV) and expert sources (French, 2008) that this sector provides valuable insights into how to manage sustainable supply chains. How society has evolved has been interdependent on food supply. This is exemplified by the interrelationship between food supply and the three pillars of sustainability, as seven billion people need food. This is set to grow to nine billion by 2050 (Intergovernmental Panel on Climate Change [IPCC], 2015). The £1.5 trillion F&B sector provides a rich arena to explore sustainable supply chains. The global confectionery market was worth an estimated £1.5 billion retail value in 2016, of which chocolate confectionery was worth £79 billion. The world consumes over three million tonnes of chocolate annually. Between 2014 and 2019, this is expected to grow by 7.2% (Statista, 2016). Chocolate production is adapting to meet changing macroeconomic and consumer trends. Consumers appetite for high quality, sustainable and ethically supplied products is growing (van der Vorst et al., 2009; Alvarez *et al*., 2010). 33,000 'responsible' products introduced to the top 'sustainability friendly' markets of France, the U.K, the U.S. and Germany from 2009 to 2010 (Agriculture & Agri-Food Canada, 2011).

However, within this growth market there are serious challenges. This sector captures the zeitgeist of sustainability issues such as planetary boundaries, macroeconomics, geopolitics, and human rights. The sector is expected to produce 4.5 million tonnes by 2020 to meet this demand yet production is declining. Over 70% of production comes from developing world countries where sustainability issues come into relief as risks and impacts

are heightened. Macroeconomic and geopolitical issues such as decrease in distributed income and migration to cities has resulted in growing demand and declining production. Environmentally the quality and quantity of stock is decreasing due to aging plants, unsustainable farming practices and climate change. The chocolate industry is one of the earlier cohorts impacting upon and being impacted by sustainability issues, alongside examples such as bananas, coffee and tea. The sector's impetus for action was the Harkin-Engel Protocol on child labour in 2001. Since then, there have been multiple partnerships and multi-stakeholder collaborations convened to tackle the issues that require collective action. The inherent tensions between the global economic system and sustainability (Appendix 1) threaten the well-being of supply chain stakeholders. Companies are having to understand the trade-offs between different stakeholders that have implications for demand, market commodities and price of commodities. Sustainable sourcing and market supply have become a vital component of core business strategy and operations. This can be seen by the 60% increase in sustainability reports between 2001 and 2013 as 92% of the world's largest 250 companies and over 90% of 45,000 publicly traded companies globally report on sustainability performance (United Nations Environment Programme, 2014). Since the first reports were submitted to the GRI in 1991, seven of the 'Top 10' Food & Beverage companies[1] identified by Oxfam as having the largest revenues globally have assessed their supply chain policies and practices along either GRI or non-GRI guidelines. Therefore, the industry has over twenty-five years' experience in sustainability reporting on policy and practices in tackling some of the world's largest and most critical issues and the challenges of putting those plans into practice.

The end-to-end global sustainable chocolate supply chain network (ending in UK retail sector) was selected as a critical case as it met the contextual and case study conditions. This is a growth market that is beset with sustainability challenges and opportunities end-to-end from supply, to manufacturing, market, and waste trends. The network presents an array of stakeholders with varying principles regarding sustainability and propositions as to how they capture its value across the supply chain. It is also a relatively small network – in comparison to soy and palm oil for example - and within the resources of the researcher to study.

[1] Associated British Foods, Coca-Cola, Danone, General Mills, Kellogg's, Mars, Mondeléz, Nestlé, PepsiCo and Unilever

1.3.4. Structure

This thesis is divided into seven chapters. The structure for the remaining six is as follows:

Chapter 2. Literature Review: Explores the literature in three parts. Section 2.2 consists of a narrative review of SCM, sustainability and SSCM literature. Section 2.3 is a systematic review of business processes. Section 2.4 synthesises thematic elements and theoretical concepts that sensitises the research to the issues in SSCM.

Chapter 3. Research Methodology: Describes the methodology. It is structured in four main sections including research agenda, research philosophy, research design, and evaluation of the methodological process.

Chapter 4. Case Study Findings: This chapter is structured in three parts in the main body After the introduction, Section 4.2. presents the research context, including a background study on the food and beverage sector and explains the value of insights to and from the sector. Section 4.3 describes the network. It maps the sustainable chocolate supply chain network and provides an overview of the SSCM framework in practice. Section 4.4. presents data on nine nodes by examining each of the theoretical concepts – organisational orientation, network structure and style of practice – presented in Section 2.4.3. of the Literature Review.

Chapter 5. Analysis and Discussion: This chapter provides a within-case analysis of the network and cross-case analysis of the commercial companies as nodes within the network. Two theoretical lenses – organisational orientation and network structure – are used to examine the three thematic elements – principles (Section 5.2), processes (Section 5.3) and practices (Section 5.4). A theoretical discourse of the findings within each of these is provided. The key findings of this chapter are summarised in Section 5.5. where a conceptual framework of SSCM is presented alongside theoretical propositions and archetypes (and their typologies) of practice that explain it. The conceptual framework and its constructs are contextualised within SSCM literature. In conclusion, a summary of this thesis and its theoretical development is presented.

Chapter 6. Conclusion: The final chapter offers a conclusion to the research project and offers a thesis of the research propositions by providing a critical overview of the research findings. This allows the contributions to theory, practice, policy and methodology to be considered and the limitations of the study discussed. Finally, proposals are made for future research.

1.3.5. Evaluation

Limitations

There is some evidence to suggest that the conceptual framework and theory developed should be widely applicable. At the very least, ethical and political insights provide issues for practice and policy considerations and impact. However, there are limitations both in the scope of the study methodologically and theoretical generalisability, that is likely to limit their use and, therefore, require further investigation.

Contribution

This thesis offers a possible explanation for how to manage sustainable supply chains, and, in doing so, both built and developed theory – all themes elaborated upon in Section 6.4. 'Research Contributions'.

The main contributions of the research were twofold: It mapped and modelled an end-to-end supply chain network and provided a SSCM framework. In doing so, it built theory by offering a model of key business processes in SSCM, taxonomic classes of SSCM practices, eco-centric theory, pre-competitive collaboration, concurrence, and leveraging interorganisational clusters to manipulate sustainability principles.

Some existing theories were developed to take account of the findings, including business models and stakeholder theory. There is evidence of a paradigm shift in business as evidenced in how the two concepts of sustainability and SCM merge. This is leading to a range of business models that reflect how sustainability and stakeholder values are captured, based on the varying interpretations of principles. There is a shift in mindset from resistance to the receptivity of stakeholder influences to capture stakeholder value. The theoretical understanding of stakeholders and business models are changing in light of the paradigm shift in business due to sustainability.

CHAPTER 2 LITERATURE REVIEW

2.1. Introduction

The purpose of the literature review was to map the existing fields of SCM and sustainability. This contextualised SSCM with regards to various perspectives and approaches in how to manage supply chains sustainably. The issues arising in these fields were discussed, synthesised, and gaps in the literature identified. From these fragments, themes on principles, processes and practices were developed to create a connected view in understanding the phenomenon.

The literature review was structured in three parts: narrative, systematic, and synthesis. The narrative review explored how the how concepts of SCM and sustainability merge (Section 2.2). It outlined major lines of research to identify the key trends, definitions and theoretical propositions of the topic area and identified the keywords for the systematic literature review (SLR).

The second component, a SLR (Section 2.3), provided the data for building a model of key sustainability business processes (Figure 2.5). Specifically, it identified, described and defined key processes, their sub-processes and how they interact.

The third and final component of this chapter analysed and summarised the results of the reviews (Section 2.4). The research synthesis established new themes (principles, processes and practices) and relationships among them. Specifically, it proposed a model for key sustainability business processes and identified principles and practices as essential ingredients in understanding how the model is managed. The section reviewed theories to provided guidelines - stakeholder network theory and orientation theory – as sensitising concepts in which to examine the themes empirically.

2.2. Narrative Literature Review

This section provides a general overview of SCM and sustainability. From these discussions, the emergent field of sustainable supply chain management (SSCM) is positioned and its divergent tenets and definitions identified. Key concepts shall be extrapolated, and their relationships reframed to help provide insight into how SSCM.

2.2.1. Defining the Supply Chain

It is important to provide an outline of SCM to help position the research and the theoretical concepts within which it is set. This is because the term can be interpreted in many ways based on a broad range of theoretical and methodological contributions concurrent with various academic fields and levels of practice. For this study, the Global Supply Chain Forum's (GSCF) definition shall be used,

> "*Supply Chain Management is the integration of key business processes from end user through original suppliers that provides products, services, and information that add value for customers and other stakeholders."* (Lambert & Cooper, 2000:66) (Figure 2.1).

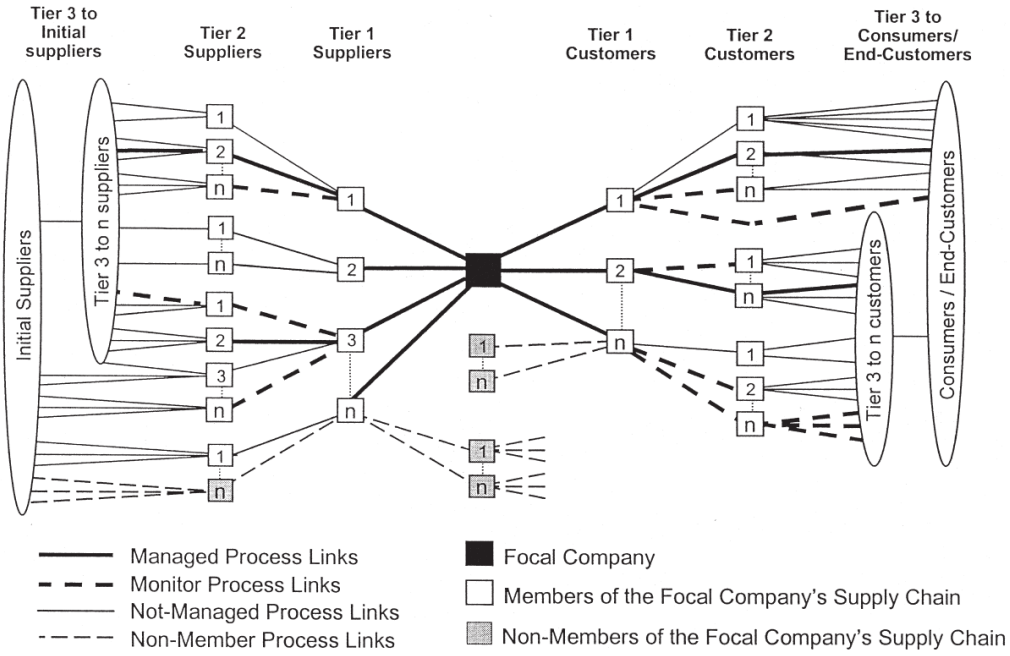


Figure 2.1: Supply Chain Network and Types of Business Process Links.

Source: Lambert & Cooper (2000:75)

However, this definition is modified to include additional resource (financial and manpower) flows (Spekman *et al.,* 1998; Mentzer *et al.,* 2001; Hines, 2013). This definition highlights four key constructs of SCM:

- Supply chain is the flows of products, services, resources and information and the links that facilitate these.
- SCM is the strategic organisation of cross-boundary relationships and business processes to achieve a common goal.
- Within a supply chain network, each organisation is a member yet each views its membership differently.
- The position of the company within the network determines its power to manage and influence decisions to meet its own business outcomes.

Therefore, the perspective of the network allows the examination of an understanding of organisations' "*interrelated roles and perspectives*" that determine practice (Lambert & Cooper, 2000:72).

Histology and Theoretical Foundations

Our knowledge of supply chains is a relatively new one in terms of business and organisation management since its inception in the early 1980's (Lambert & Cooper, 2000; Hines, 2013). SCM stems from the discipline of logistics and the seminal work of Oliver and Webber who coined the term SCM (Oliver & Webber *in* Christopher, 1992). Since its inception, fundamental and expansive shifts have happened taking it from the domain of logistics and operations management to an inter-disciplinary field encompassing strategic management.

Initially in the 1980's, under the domain of logistics, it was the internal integration and management of functional silos (Croxton *et al.,* 2001; Burgess *et al*., 2006; Grimm *et al.*, 2015) and vertically aligning operations with business strategy (Frohlich & Westbrook, 2001). Then in the 1990's, a shift to the process view focused on the tactical organisation of related activities to add value to a product i.e. the value chain, through the flows and links, and vertically aligning operations with business strategy (Frohlich & Westbrook, 2001). Subsequently, greater efficiencies emerged in integrated process management, but the subject area was not without its limitations. Scholars argued that the broader conception of SCM needed to consider interorganisational constructs among relationships and the complexity of the network to extend its value and competitive advantage (Christopher, 1992; Spekman *et al*., 1998; Lambert & Cooper, 2000; Mentzer *et al*., 2001).

The re-conceptualisation of SCM, exposed the variety of stakeholders, the complexity of relationships and combinations of linkages with which relationships may be strategically managed. Two conceptual issues in social relations emerged: 'soft' psycho-social issues that deal with social relationships and the interdependence that progressively collaborative relationships and trans-organisational practices were having to address (Burgess *et al*., 2006); and the traditionally positivist philosophical paradigm of operations management was not equipped to deal with. This created a third juncture for change in the conceptualisation of SCM where the symbiosis of structural and relational components underpinned SCM philosophy. These are embodied in the GSCF definition through its model of SCM of three inter-related elements: network structure, management components and business processes (Lambert, 2008) (Figure 2.2).

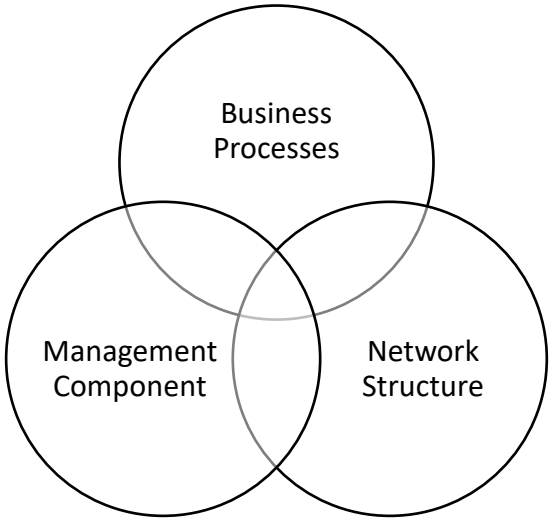


Figure 2.2: SCM Framework by Douglas et al. (1998).
Source: Lambert (2008:23)

Network Structure

The network element of SCM represents the configuration of partners and their links: not to be confused with a system, which is a series of related processes. It considers the context of the system, i.e. the relationships which the system facilitates and their links. Moving beyond the dyadic ties of trading partners, it considers the complexity of many different stakeholders and their relative positions. Explicit knowledge of its configuration enables its management, including mapping the network by identifying stakeholders, plotting their position relative to the focal company and identifying the appropriate types of process links (Lambert & Cooper, 2000).

When mapping the network, various conceptions of stakeholders can be taken into consideration. In former years, SCM focused on the organisation of commercial relationships. Therefore, scholars offer various levels of analysis as to how the variety of relationships can be mapped. They include how relationships may be organised such as direct, extended and ultimate configuration model (Mentzer *et al.,* 2001). Miemczyk, Johnsen and Maxquet (2012) illustrate an alternative model that classifies 'direct' as dyadic, and the latter two as a supply network in which linear supply chains interconnect and is focal-firm centred. Lambert and Cooper (2000) also describe the 'direct' relationship but they juxtapose it against 'indirect' relationships. These represent all relationships through a focal company's direct suppliers and customers in its network and are classified as members and non-members (Figure 2.1). Members, be they direct or indirect, can be classified further as primary, strategic business relationship that adds value or support by providing '*resources, knowledge, utilities or assets for the primary members*' (Lambert & Cooper, 2000:69). Non-members are organisations in the network who are not members of a company's supply chain yet whose decisions and activities affect the performance of other supply chains in the network. Miemczyk *et al*. (2012) extends the network structure to include indirect relationships of both commercial and non-commercial stakeholders. While Wolf describes non-commercial stakeholders as secondary stakeholders, i.e. "*devoid of a contractual relationship with an organisation, nonetheless, have some power to exert over them*" (2014:319).

Having identified stakeholders in the network, the next stage in mapping the structure is to plot positions relative to each other. Here, Lambert and Cooper's (2000) conceptual assumption, underpinning their configuration model, may be challenged. Theirs is a distinctly process-orientated conceptualisation of the network where power is the domain of management. However, they do acknowledge that within the supply network there are powerful members who direct the orientation of the supply chain. Proponents of social exchange theory and institutional theory argue that there are 'power' forces also at play in the network structure that affect behaviour (Rowley, 1997; Vurro *et al*., 2009). Network theory is used as a schema to examine power across the network using two dimensions - centrality and density. The theory examines the structure of relationships, diffusion of practices and how this influences outcomes (Roy *et al.,* 2006).

Centrality refers to an actor's position in the network relative to others. Rowley defines centrality as "*an actor's number of direct ties to other actors, independent access to others, and control over other actors, respectively*" (1997:898). The degree of centrality indicates the importance of the company relative to its other organisations as two aspects of positional status in relationships are evaluated. Firstly, as a reputational quality, centrality indicates an actor's status as 'well connected' and close links among the network. Secondly, centrality reflects the informal power obtained through the network structure. Vurro, Russo and Perrini describe how "*a central actor can control the flow of information, acting as a gatekeeper and serving as a liaison between disparate regions of the network*" (2009:611).

Density describes the overall structure of the network through the interconnectedness of links. The range of links, as described by Lambert and Cooper (2000) as managed, monitored, not managed and non-member, is captured. Density is measured by the number of links as a ratio to the number of relationships. Thus, the number of ties is demonstrative of the density. Efficiencies increase comparatively with the diffusion of institutionalised norms across the network such as legitimacy and conformity due to denser links that enable flow, such as communication and knowledge exchange. Increased density is a counter-force and has a constraining effect on an individual organisation's power and influence. Vurro et al. explain that the density of links places a greater onus on the focal company and "*facilitates the sharing of sustainability norms and related practices"* (2009:612).

Management Component

This element focuses on the management of relationships across the supply chain. Specifically, it is the links between companies, as organised activities with other members of the supply chain to facilitate flow and process integration. Rowley (1997) describes these links as relational ties or linkages that are channels for transfer of 'flow'. While Lambert and Cooper (2000) define them as the links between processes. Borgatti and Li (2009) consider process links as pipes and relational ties as bonds. These links have been categorised as structural, system-dominated constructs and relational, people-focused constructs (Jones *et al*., 1997; Burgess *et al.*, 2006; Lambert, 2008; Mentzer *et al*., 2001; Terpend & Ashenbaum, 2012). Lambert classifies these components as firstly, "*planning, control methods, workflow/activity structure, organisational structure, knowledge*

management, and communication structure" for the structural component. Secondly, the behavioural component is categorised as, "*management methods, power and leadership, risk and reward, culture and attitude, and trust and commitment*." (2008:236).

Storey (2006), states that the 'central underpinning ideas' of the management function is alignment and integration of processes. Academics and practitioners have come to understand the strategic significance of linking and managing of collaborative relationships across the supply chain network. The management of the link and the quantity and combinations of these components are performative (Lambert & Cooper, 2000; Frohlich & Westbrook, 2001). For this study and drawing on the concepts of relational and structural components thematic in the field of SCM, a dualistic concept of hard and soft links shall refer to the structural links between processes and relational ties between relationships respectively.

The greater the number of links the greater the efficiency of flows, coordination and collectivism (Rowley, 1997). However, due to the divergent value of relationships and resource intensity Lambert and Cooper surmise that, "*To integrate and manage all process links with all members across the supply chain would, in most cases, be counterproductive, if not impossible. The key is to sort out some basis for determining which members are critical to the success of the company and the supply chain and, thus, should be allocated managerial attention and resources.*" (2000:69). Strategic consideration is necessary of the types of relationships a company needs to develop to achieve its goals and the maintenance of these. The tension between divergent values and density also raises the issue of a focal company determining supply chain orientation (SCO) for their own success that may be at odds with stakeholders in the supply network and the power they use to do so.

Business Processes

Davenport and Short describes business processes as "*set of logically related tasks performed to achieve a defined business outcome*" (1990:12). Scholars extended the concept of 'business outcomes' to encapsulate the external process integration across organisational boundaries and include customers (Croxton *et al.,* 2001; Hammer, 2001). A tenet of SCM is that each company in the supply chain affects the orientation and performance of other supply chain members and that of the overall supply chain (Cooper *et al.,* 1997). Therefore, the concept of business processes as an organised set of activities

to align members for holistic orientation is an important facet of SCM. Thus, a new and redesigned concept of business process methodology in SCM emerged placing a broader, holistic functionality serving the purpose of SCM and systematic partnership activities end-to-end across the supply chain (Lockamy & McCormack, 2004). As such, business process models have been developed both in academia (Cooper *et al*., 1997; Croxton *et al*., 2001; Huan *et al.,* 2004; Lockamy & McCormack, 2004; Lambert, 2008; Trkman *et al.,* 2015) and practice (APICS, 2018) to increase effectiveness and provide a process-based approach to SCM (Stewart, 1997; Lockamy & McCormack, 2004; Trkman *et al*., 2015). Lambert et al. (2005) identified four such methodologies with delineated processes (Table 2.1). These demonstrate a precedence for a framework of business processes that systematically and holistically organises activities among partners in a structured and strategic manner to make the supply chain efficient and effective.

Table 2.1: Supply Chain Management Business Process Models

Model	**Key Processes**	**Authors**
Global Supply Chain Forum's *Supply Chain Management Process model*	1. Customer Relationship Management 2. Customer Service Management 3. Demand Management 4. Order Fulfilment 5. Manufacturing Flow Management 6. Supplier Relationship Management 7. Product Development and Commercialisation 8. Returns Management	Lambert et al. (1998)
Supply Chain Council's (now APICS) *SCOR model*	1. Plan 2. Source 3. Make 4. Deliver 5. Return	APICS (2018)
Three Core Business Process model	1. Customer Relationship Management 2. Product Development Management 3. Supply Chain Management	Srivastava et al. (1999)
Council of Logistics Management's *Supply Chain Management Framework*	1. Plan 2. Acquire 3. Make 4. Deliver 5. Product Design/Redesign 6. Capacity Management 7. Process Design/Redesign 8. Measurement	Bowersox et al. (1999)

The effectiveness of a process model (and that of the supply chain) can be determined by the level of integration of the process model and the degree to which processes are aligned and coordinated across the supply chain. Early research by Frohlich and Westbrook

(2001) describe how the degree and direction in the *arc of integration*, are the key dimensions by which strategic decisions are made. This model allows a company to consider factors that manage risk and lead to sustainable competitive advantage, such as types of partners (i.e. suppliers and customers), types of technology and information systems, or capabilities and processes (Sarkis, 2003). It also helps identify the areas where strategic decision-making is required, the control hierarchy of decision makers (or network of hierarchies), and "*what patterns might exist among the various relationships*" or where heterogeneity exists in processes and integration mechanisms (Sarkis, 2003:405). This concept of managing relationships in the supply chain focuses on the processes that develop and maintain relationships. Research has established that there are different types of collaboration based on the level of integration and nature of relationship (Spekman *et al*., 1998; Lockamy & McCormack, 2004). These characteristics result in recommended best practices that complement and enhance the management of specific business processes models and have led to a dedicated body of knowledge in the field (Trkman *et al.,* 2015). Furthermore, the development of practices consistent with the tenets of SCM are necessary.

2.2.2. Key SCM Concepts Emerging from the Literature

Having examined key elements of SCM, several interrelated issues occur which merit further examination, such as aspects of relationship management including partnership, collaboration, interdependence and embeddedness. From this, the necessity to distinguish processes and practices is explained. Having done so, a discourse on power, legitimacy institutional theory and the focal company elucidates the forces that influence behaviours and outcomes. Ultimately, this leads us into a discussion on orientation. Continuously, throughout these discussions the underpinning dichotomic interdependence-forces of individualism and unilateral benefits versus collectivism and multilateral benefits, and their supporting theoretical frameworks, shall frame these topics.

<u>Relationship Management</u>

Aspects of relationship management that require further examination are the types of relationships and their constraints. Effective management involves strategically identifying partners to achieve a goal. For example, Mentzer et al. (2001) describe these partnerships as companies collaborating to share information, risks and rewards. Effective SCM is made

up of a series of these relationships built and maintained over the long-term. Partnership is different from traditional transactional arrangements as it is an arrangement among partners to advance their mutual interests by engaging directly in activities. This arrangement is representative of a phased process of cooperation, coordination and collaboration, i.e. Collaboration Framework (Spekman *et al*., 1998).

The types of relationships impact on the SCM elements. Across the network there are multiple stakeholders representing a diversity of potential partnerships. Spekman et al. (1998) report that joint dependence is key to an integrated supply chain. Process integration is optimised through best practice such as trust, commitment, satisfaction and willingness to share information. Spekman et al.'s (1998) framework is as dynamic as it is developmental, providing a description of the processes and practices that support each stage of development. Each phase of the framework increases resource intensity and link density. Yet, there is an inherent issue as these actions are counter-intuitive to traditional cost-driven behaviours. The tension in interdependence is further exacerbated by suppliers and buyers having different values and beliefs, however, to achieve a common goal they must find common ground.

Supply Chain Orientation

Understanding orientation as a handmaiden to SCM is important as orientation is a concept that helps explain the mechanisms of goal setting and alignment in relationship management. Mentzer et al. defines SCO "*as the as the recognition by an organization of the systemic, strategic implications of the tactical activities involved in managing the various flows in a supply chain*" (2001:11). Orientation has a direct relationship with the SCM framework. Orientation is the willingness of a company to strategically and systematically build relational and structural links to improve customer value and satisfaction and achieve lower costs and competitive advantage across the supply chain. Orientation requires partners, particularly direct members, to commit to and coordinate processes and practices strategically.

Initially, as the concept emerged it denoted a radical shift in a company's mindset from an individualistic competitive model to the benefits of supply chain coordination, as noted by Frohlich and Westbrooks (2001) observation of a shift to horizontal alignment and Christopher's (1992) supply chain competitiveness and the performance of all members therein. Banerjee (2001) described this concept as internal and external orientation

reflecting internal company values and a manager's consideration of external stakeholder needs respectively, determined by the constituencies of each. As Spekman et al. (1998) noted, finding a common 'worldview' based on beliefs or values between partners who have divergent motivations or beliefs can be problematic. However, this can be overcome by finding a common goal or level of consensus (1998:65). Mentzer et al. (2001) state that finding a common goal, i.e. strategic orientation, is critical for effective SCO.

Concurrent with Banerjee's (2001) *external orientation,* Mentzer et al. (2001) introduced an extended level of orientation, i.e. network orientation, which they likened to the management of a water basin. Network orientation takes into consideration the contextual external conditions. They argue this level of alignment and coordination to that of a water basin where,

> *"When one state through which the river flows recognizes the need for states above it in the water basin to conserve and preserve the water supply and recognizes its own need to do the same for states below it, the state has taken a systemic strategic orientation—the river equivalent of a supply chain orientation. However, without the cooperation of the states above and below it, there is little it can do about implementing this orientation. It is only when a number of continuous states adopt such a similar orientation and actively manage the resources of the river that we can say the water basin is managed."* (Mentzer *et al*., 2001:14).

This rationale can be extended to Miemczyk et al.'s (2012) argument for management of the industrial network (external constituencies) given recent trends in SCM which necessitate extended levels of partnership including non-commercial stakeholders and the need for collective action. In the context of supply chain network orientation and the dynamics between internal and external orientation, the literature on power and its ability to influence and effect psychological change (French & Raven, 1959) is worth examining.

Power

Understanding the dynamics of power is central to effective relationship management and process integration as it affects links that facilitate supply chain orientation and performance (Terpend & Ashenbaum, 2012). Cox explains that "*whichever power and leverage situations buyers find themselves in all business relationships have to be managed with appropriate relationship management styles if they are to be effective*" (2004:351). This indicates power as a mechanism between network structure and the management component. Furthermore, that styles of practice emerge as a result of power regimes.

There are several features of power to be considered with regards to the regime of relationship management across a supply chain network.

Power as a leveraging mechanism to influence psychological changes in values and behaviours has been examined by French and Raven (1959). There are several bases of power including reward, coercive, legitimate, referent and expert (French & Raven, 1959). Huo, Flynn and Rowley (2017) categorise these as activated (reward and coercive) and passive power (expert, referent and legitimate) denoting the intentional versus unintentional use of power. Maloni and Benton (2000) demarked these power bases as mediated/non-mediated, coercive/non-coercive and economic/non-economic. Of particular interest is the discourse on mediated (coercion, legal legitimate and reward) and non-mediated (expert, referent and legitimate) power bases. Underpinning these forces, is the assumption that a company will use these to control the behaviour of supply network members to meet their own strategic agenda as has been discussed within the theme of internal orientation. These mechanisms help explain the influence and manipulation of values and behaviours across the network particularly because there is a positive relationship between non-mediated power and cooperation, increasing interdependence and decreasing asymmetry. Treated in this way, power is described as a possession that an actor leverages to secure behaviour (Knights, 2009; Meehan & Wright, 2012). Within this perspective, Meehan and Wright (2012) explain power as a possession located within the complex dynamics of the organisation, individual and relationship. While Meehan and Wright (2012) consider the step-down of power as an interorganisational unit of analysis, others (Cox, 1999; Rowley, 1997 & 2017; Knights, 2009) consider the location of power as a step-up within the network – the organisation, interorganisational relationships and network. The concept of power as a possession at an interorganisational level is concurrent with the literature on orientation and internal and external dynamics.

Another way to consider power is as a determining force that resides in the system (Knights, 2009). Cox argues that it is critical to consider power structures and the 'hierarchy of structural dominance' (1999:172). He also equates business success with the ability to leverage power over others thus creating an imbalance in relationships. Conceptualising sources of power within the network, Lukes (2005) considers three dimensions. Lukes classifies overt power as a one-dimensional perspective. His two-dimensional perspective is that contentious issues are repressed as part of a decision-making and agenda-setting

conception. The third dimension is ideological hegemony; what Fairclough (1992) refers to as social practice analysis. It considers the actions and inactions that shape the perceptions and preferences of actors. These are the mechanisms of ideological and social control over how sustainability is conceived. Whereas, Rowley (1997) examines the constraints and opportunities of power sources in dyadic relationships through SNT. Network density and mutual dependency, as a structural power source, facilitate efficiencies in communication and information exchange which in turn reduces risks and uncertainties and institutionalises norms. He offers centrality as a source of power in which the "*number of direct ties to other actors, interdependent access to others, and control over other actors*" characterise it (1997:898). He also states that various configurations of the network structure create power balances between a company and its stakeholders. Emerson (1976), Huo, Flynn and Zhao (2017) and Terpend and Ashenbaum (2012) substantiate this claim, finding the power to be context-dependent. Vurro et al. (2009) demonstrate that an organisation's level of embeddedness and balances of power create different approaches to shaping sustainable supply chains. It is within this context that French and Raven's (1959) discourse on cultural values and acceptance of social structure as bases for legitimate power gains focus. French and Raven's discourse capture a key feature of power and influence. Values, norms and behaviours arise from the dominance of a legitimate power source/actor and exerted upon dependent actors in a highly dependent system. This concept is captured in the dynamics of internal and external orientation to influence SCO. Furthermore, the legitimate source of power is dependent upon actors within the system to adopt and diffuse these values to create stability thus institutionalising them and increasing interdependency and density (Rowley, 1997).

Therefore, power has been treated as an isomorphic mechanism in network studies (Rowley, 1997). Knights helps explain this phenomenon within the context of power as,

> "*Within mainstream organisation theory, there are two diametrically opposed ways of understanding power: crucial mechanism in managing and sustaining survival in complex environments or as a disruptive mechanism exercised outside of its formal hierarchical limits by those seeking to challenge it*" (2009:149)

This quote illustrates how value creation across the supply chain is drawn from consensus within the system. However, there is a limitation within this concept as it fails to consider the major social inequalities exercised by power (Alvesson *et al*., 2009). Knight argues that authority is legitimised because some level of "*consent or compliance among those over*

whom power is exercised" (2009:145). Furthermore, it becomes a determining force because authority and legitimacy is presumed positively productive and enabling. Power has an instrumental function. As a possession, it is the source through which organisations, interest groups and the network leverage their sustainability principles and practices. This requires a sophisticated understanding of power, its dynamics, mechanisms and functional levels.

From a resource-based view (RBV) perspective, power asymmetry arises from one partner's dependence upon another, creating advantages and disadvantages for the powerful and dependent organisations respectively (Reimann & Ketchen, 2017). Whereas, proponents of social exchange consider power in terms of controlling behaviour, namely as the "*power-dependence relations... in which a group gives a person approval or status in return for his conformity*" (Emerson, 1976:346). Finally, critical theorists examine how power is used as a means to exploit others and seeks to reform the orientation, flow and performance to a more equitable distribution (Orlikowski & Baroudi, 1991). Underpinning these forces is the assumption that a company will control the behaviour of supply network members to meet its 'internal orientation' based on its culture, structure and strategic agenda (Banerjee, S.B. 2001).

The discourse on power raises the question as to how do companies leverage power mechanisms to reconcile conflicting interests for their own benefit, and are they doing so for the benefit of the entire supply chain? Reimann and Ketchen, in their review of power in SCM, state that a "s*cholars' understanding of the interplay between different power bases is still limited.*" (2017:5) Therefore, it is worth exploring the relational and structural power bases to examine this question.

Focal Company Perspectives

Scholars argue the importance of the position of the focal company in the supply chain network (Lambert & Cooper, 2000; Christopher, 2011). Two issues are considered in the context of this research and thematic development: (1) Focal companies as a source of power in the network; (2) Moving from a focal company research perspective to a network perspective. These issues capture three aspects of interorganisational power emerging as schools of thought within this literature review: the organisation (and its internal orientation), the network (illustrative or external orientation) and the relationship between the two (resulting in SCO).

Firstly, focal companies, those considered to hold the locus of power, orientation and decision-making in the supply chain, are increasingly held accountable for the issues across the supply chain (Vachon & Klassen, 2006; Seuring & Müller, 2008a; Walker & Jones, 2012). Generally, these companies are producers, brand marketers or retailers who dominate supply chain relationships and determine its design and level of integration (Vurro *et al.,* 2009). These companies control the supply chain as they are relatively powerful compared to their network partners (Lambert & Cooper, 2000; Beske & Seuring, 2014). They are centrally located within the supply network as they have the power through resources and legitimacy to exert their influence over partners (suppliers and customers) (Alvarez *et al.,* 2010), broker the design and governance of the supply chain and coordinate integrated processes and practices (Vurro *et al*., 2009); all important considerations in SCO and then managing the processes to achieve this. As Steyn states "*full commitment to process orientation and management is required… [However] it is critically important for organisations substantially to improve leadership acumen if they wish to achieve sustainable strategic supply chain success*" (2012:1). This concept brings into relief preceding issues such as the nature of collaboration, relationship interdependence and embeddedness, types of practices that orientate a supply chain in favour of powerful focal company's strategic agenda.

Secondly, the relevant literature on SCM in this study is dominated by empirical research from the perspective of the focal company (Appendix IV). Of the 28 articles reviewed 12 were from the perspective of focal companies. There are critical assumptions as a result of this perspective as to best practice, information dissemination, the legitimacy of academic research to institutionalise normative models and practices (Alvesson *et* al., 2009). However, Rowley (2017) proposes stakeholder network analysis to transform research from the perspective of the focal company and positioning it as a variable within the network. He argues that organisations exist within a network of relationships. The network creates advantages for dominant actors as exemplified by French and Raven's (1959) explanation of referent power as a source within the cognitive/social structure of an individual (organisation) or group (network).

Differentiating Processes and Practices

In SCM literature, 'process' and 'practice' terms have been used interchangeably, however for this study, it is important to clarify these concepts. Davenport describes business

processes as "*set of logically related tasks performed to achieve a defined business outcome*" (1990:12) which extend across communities, i.e. partnerships (Croxton *et al*., 2001). Brown and Duguid (2001) explain these as the coordinating mechanisms between communities. While one school of thought defines these as practices (Bromiley & Rau, 2014; Carter et al., 2017), others argue their differences (Spekman *et al.,* 1998; Brown & Duguid, 2001).

Practices are what people actually do in work and are considered emergent and dynamic (Takahashi et al., 2010), forming communities of practice to share and construct meaningful knowledge (Wenger, 2000). What Spekman et al. describe as "*walking the walk*" (1998:62). Practices have been touched on in the concept of embeddedness and the relational ties that shape behaviour. These behaviours are formed by a "*set of habits, customs, priorities and approaches*" unique to a community (Brown & Duguid, 2001). In this context, understanding how to manage supply chains, is to understand the distinct practices that emerge among different levels of partnership, power dynamics of interdependencies and how the processes are integrated. Thus, it may be reasoned that while processes are 'real' mechanisms, how they are 'actualised' in practice is heterogeneous. Power influences practices such as trust, coercion, cooperation, commitment and legitimacy (Burgess *et al*., 2006; Terpend & Ashenbaum, 2012). However, Burgess et al. (2006) argued that there had been a deficit of 'psycho-sociological issues' that examined these issues. Since then, Reimann and Ketchen explain that there has been an increasing trend in the literature and that power has cemented its position as a "*central element in supply chain relationships*" (2017:3).

2.2.3. Introducing Sustainable Supply Chain Management

With the advent of sustainability in SCM, the conceptual understanding is being extended due to an emergent set of principles. These include accounting for and reconciling sustainability dimensions (Seuring & Müller, 2008b; Morali & Searcy, 2013). Also, taking a fully integrated, holistic approach to vertical (Pagell & Wu, 2009) and horizontal alignment (Seuring & Müller, 2008b; Carter & Rogers, 2008). By extension, multiple stakeholders are considered in decision-making (Seuring & Müller, 2008b; Vachon & Klassen, 2008; Pagell & Wu, 2009). All of which extends the boundaries of responsibility and the necessity for collaborative activities across supply chain networks (Vachon & Klassen, 2008; Vurro *et al.,* 2009). This is essential because the scale of issues requires an understanding of common

goals and collective action, i.e. SCO and strategic SCM. As such, managing relationships through a systemic, holistic understanding of network nodes and how they relate to each other are necessary (Shook *et al.,* 2009). Furthermore, a fully integrated sustainable supply chain leads to long-term economic benefits and competitive advantage (Rao & Holt, 2005). Competitive activities include strategic collaboration (Gold *et al.,* 2010), difficult to replicate resources and knowledge (Carter & Rogers, 2008; Sarkis, 2011), supplier management (Craig *et al.,* 2011; Vanpoucke *et al*., 2014), brand equity (Craig *et al*., 2011), dynamic capabilities (Vachon & Klassen, 2008; Beske *et al*., 2014), and customer satisfaction and market share (Seuring & Müller, 2008a).

As part of this discourse, academics are developing various theoretical rationale to explain concepts, processes and practices (Burgess *et al.,* 2006; Shook *et al*., 2009). Yet several issues arise. Firstly, there are divergent conceptualisations of sustainability across the supply chain that affect its full integration. Secondly, how sustainability is conceptualised impacts how it is implemented in practice. Thirdly, due to increased collaboration among stakeholders, to understand how sustainability is embedded it is necessary to extend our conceptualisation of the supply chain to a network view and stakeholder analysis. Each of these issues will now be explained in detail.

2.2.4. Conceptualising Sustainability in Supply Chain Management

Sustainable Development

At its simplest level, *sustainability* is the ability to sustain an activity, rate or level. The term has become a megatrend[2], providing the imperative for the entire global society to take social, environmental and economic action and a mindset for addressing interconnected global trends and crises of the Anthropocene era (Griggs, 2013), yet there is ambiguity in how it is conceptualised in terms of its governing principles and approaches.

Principles are the concepts that govern action. Glavic and Luckman define principles as "*fundamental concepts that serve as a basis for actions, and as an essential framework for the establishment of a more complex system*" (2007:1876). Sustainability is conceptualised in terms of its dimensions (environmental, social and economic) and the principles that its approaches. The dimensions serve as the basis for an ideal sustainable system which is

[2] Refer Appendix I: *Recent Megatrends and the Emergence of Sustainability* for explanation of the terms megatrend and anthropogenic, and geopolitical and macro-economic trends

hierarchical and has different approaches depending on how principles and dimensions are treated.

Sustainable development is the predominant approach that integrates economic, environmental and social dimensions for the well-being of Earth's natural and social systems and a sustainable future. Within the concept of sustainable development, various approaches developed as a result of values and attitudes regards the relationship between the needs of humans, nature and the economy, how these should be organised and the political implications of this (Roorda *et al.*, 2012). These have been conceptualised within two polarised theoretical discourses of classical economic and ecology theory (Gladwin & Krause, 1995; Elliot, 2012; Roorda *et al.*, 2012). Elliot (2012) captures these two theories based on fundamentally dichotomic value systems as techno-centric and eco-centric respectively. This has resulted in a ladder towards sustainable development that captures the diversity of approaches including treadmill, weak, strong and ideal approaches (Baker *et al.,* 2005). The most prevalent interpretation, located within the techno-centric paradigm, is the Brundtland Commission's "*development that meets the needs of the present without compromising the ability of future generations to meet their needs*" (WCED, 1987:8). This broadly embraces principles of anti-corruption, environmental impact on economic activity across developing and industrialised economies, environment, ecology, conservation of non-renewable resources, human rights, labour and food scarcity (Carter & Rogers, 2008; UNGC, 2015). Since then, the wide and inconsistent dissemination of the idea of sustainable development has meant the term has proliferated across private, public and social sectors, organisational and management studies, and SCM (Johnston *et al*., 2007; Glavic & Lukman, 2007; Ahi & Searcy, 2013). Of the three hundred plus terms that subsequently manifested by the turn of the century, it was reported that most were either vague and unmeasurable or economically focused (Johnston *et al*., 2007). Implicit within these definitions are political value systems, however, it is generally sustainability dimensions that are referred to explicitly.

Business Sustainability

From a business perspective, a growing awareness of sustainability developed in a Friedmanian era of neo-classical, globalised capitalist economics under the techno-centric paradigm (Elliott, 2013). Tensions have emerged in attempting to reconcile very different and often competing dimensional values within the existing economic paradigm (Johnston

et al., 2007; Sridhar & Jones, 2013). A popular approach is Elkington's (1997) triple bottom line (TBL) accountancy-based, value-adding model. It weighs the cost/benefits of integrating sustainability into the core business. This approach, though prevalent in academia and practice, has criticisms (Johnston *et al*., 2007; Sridhar & Jones, 2013). It is too simplistic as it fails to consider the issue of proliferation of principles such as the requirements of different stakeholders even though a holistic and systemic approach is required. It also fails to aggregate different principles inherent in its dimensions, resulting in inefficiencies and confusion regarding measurement systems and values (Sridhar & Jones, 2013). The literature emphasises a value system based on creating economic value for the business weighted against capturing social and environmental value for stakeholders (Bocken *et al.*, 2014). It also fails to consider alternative business models with different values (particularly economic). These models include the fair trade, co-operative and value-at-source movements, and perspectives of degrowth (Schneider *et al*., 2010), decolonialisation (Roy, 2008) or creating shared value (Kramer & Pfitzer, 2016). The lack of shared ethos has garnered a need for ethical standards which means both *doing the right thing* and *doing things right* (Johnston *et al*., 2007).

An alternative concept is that of responsible business, which extends the systemic nature of sustainability to consider ethics and responsibility dimensions (Laasch & Conaway, 2015). This concept is captured in Randles and Laasch's (2016) *normative institutional pillar* of their normative business model which relates to moral or ethical guides. It considers the values upon which governance norms are aggregated such as corporate social responsibility, business ethics and corporate citizenship.

Another consideration is the reappraisal of the business model due to the need for a holistic, systemic approach. This requires a shift in mindset from shareholder (Friedman, 1970) to stakeholder value (Freeman, 2010) due to increased interrelationships. Subsequently, another emerging tenet of business sustainability is the shifting focus to a system view of the network of relationships and the relationship-based processes and practices that manage these (Evans *et al*., 2017).

As such, business models are being re-appraised to integrate sustainability (Bocken *et al.*, 2014). Value propositions, creation, delivery and capture are being transformed based on a range of approaches. Lubin and Esty (2010) describe four stages of value creation that are concurrent with empirical findings and the concept of styles of practice in Section 2.3.3:

> *"STAGE 1: **Do old things in new ways.** Firms focus on outperforming competitors on regulatory compliance and environment-related cost and risk management*
>
> *STAGE 2: **Do new things in new ways.** Firms engage in the widespread redesign of products, processes, and whole systems to optimize natural resource efficiencies and risk management across their value chains.*
>
> *STAGE 3: **Transform core business.** As the vision expands further, sustainability innovations become the source of new revenues and growth.*
>
> *STAGE 4: **New business model creation and differentiation.** At the highest level, firms exploit this megatrend as a source of differentiation in the business model, brand, employee engagement, and other intangibles, fundamentally repositioning the company and redefining its strategy for competitive advantage."* (Lubin & Esty, 2010:47)

It is within this context that the concept of stakeholder value proposition is formed based on the need for greater stakeholder engagement due to integrating sustainability. For example, the work of Ray and Mondal (2017) treats stakeholders instrumentally – again as a *pressure*, revealing the seminal influence of Freeman's (2010) earlier position on stakeholder theory. In comparison, others take a more receptive stance towards stakeholder value proposition (Birkin *et al.,* 2009; Boons & Ludeke-Freund, 2013; Gold & Schleper, 2017; Monastyrnaya *et al*., 2017). Monastyrnaya, Yannou Le Bris, Yannou & Petit study of sustainability thinking in business modelling demonstrates an alternative way of viewing stakeholders, i.e. "*sustainable value proposition incorporates interests of stakeholders*" (2017:463) and as such recognise,

> *"Such a value chain-based vision calls for new business models that allow alignment of stakeholder demands with activities of value chain actors in order to formulate a sustainably sound value proposition."* (2017:462).

They too recognise that this is leading to a conceptual transformation of business models. However, the three perspectives they provide – conventional business model, stakeholder and value chain – all stem from mainstream literature. Therefore, building on the work of Lubin & Esty (2010), the value creation model requires further examination and development. It is within this context that the supply chain is considered an element of business model conceptualisation, alongside the value proposition, customer interface and financial model (Boons & Lüdeke-Freund, 2013).

It is also within this context that multiple-stakeholders with diverse heterophilous business values and practices operating within a network draw a system boundary to create

sustainability and stakeholder value (Boons & Lüdeke-Freund, 2013). Sustainability impact creates interdependencies whereby homophilous actors cluster and institutionalise norms (Boons & Berends, 2001). This action creates legitimacy through strengthening the social structure and referent power as heterophilous actors are influenced by the collective wisdom of the majority opinion and conform (French & Raven, 1959).

Sustainable Supply Chain Management

There have been in-depth conceptual examinations merging the two fields of sustainability and SCM (Carter & Rogers, 2008; Winter & Knemeyer, 2013; Beske & Seuring, 2014). There is also a proliferation of interpretations due to diverse research communities (e.g. organisational science, environmental systems engineering or economic geography) (Boons *et al*., 2012) and disciplines (e.g. management, operations and engineering) (Sarkis, 2003; Carter & Rogers, 2008) through which multiple theoretical lenses are applied (Burgess *et al.,* 2006; Shook *et al.,* 2009; Sarkis *et al*., 2011). For example, Ahi and Searcy (2013) offer twenty-two unique definitions of *green* SCM as opposed to twelve they summarised from *sustainable* SCM literature. The evolution in the concept of sustainability in SCM has been extensively documented (Linton *et al.,* 2007; Hassini *et al*., 2012; Ahi & Searcy, 2013; Morali & Searcy, 2013, Taticchi *et al.*, 2014). The concept has matured from the environmentally-focused green supply chain management (GSCM) into the current holistic, systemic definition of sustainable supply chain management (SSCM). However, there is a lack of knowledge regarding the impact of SSCM theories in the practices of organisations and management (Taticchi *et al.,* 2014).

Given the foci of the research, this paper takes as its starting point Ahi and Searcy's definition as it provides a rich understanding of current SSCM literature,

> "*The creation of coordinated supply chains through the voluntary integration of economic, environmental, and social considerations with key inter-organizational business systems designed to efficiently and effectively manage the material, information, and capital flows associated with the procurement, production, and distribution of products or services in order to meet stakeholder requirements and improve the profitability, competitiveness, and resilience of the organisation over the short- and long-term.*" (2013:339).

This definition addresses the need for relationship, efficiency and value through inter-organisational business systems and stakeholder network interrelationships, profitability and competitiveness/performance respectively; all major themes in the current definitions

(Ahi & Searcy, 2013; Beske *et al.,* 2014; Andersen & Skjoett-Larsen, 2009), with the understanding that SSCM is essentially a maturation of GSCM. It also demonstrates the ethical issues of SCO for the benefit of the focal company, as this definition illustrates the focus on organisational sustainability and how it can capture value in SSCM.

Generally, SSCM researchers examine various aspect of conceptualising sustainability in SCM, under the auspices of an ideal system in which all things are equal (Carter & Rogers, 2008; Seuring & Müller, 2008a; Pagell & Wu, 2009; Beske & Seuring, 2014). It is also recognised that this is value-driven and creates a sustainable advantage. However, an interesting dichotomy has occurred. These same authors that discuss these issues have not recognised that companies operating in the dominant economic paradigm and with the power to institutionalise are developing normative principles, processes and practices based on their economic values, i.e. how they do business, and that these differ fundamentally to other less powerful actors' values. For example, Carter and Roger (2008) base their definition of SSCM by extending the work of Lambert (2008) and Mentzer et al. (2001). Subtly, a critical element has been lost in interpretation. Mentzer et al. (2001) consider how value is created across the whole supply chain and Lambert (2008) does so by considering stakeholders. However, Carter and Rogers consider "*the individual company and its supply chain*… [whereby] *Of course, the social and environmental dimensions of SSCM… must be undertaken with a clear and explicit recognition of the economic goals of the firm*" (2008:368&369). Thus, the power-base is fundamentally altered in the interest of how the focal company creates value.

<u>Conceptual Issues in SSCM</u>

Mainstream SCM literature has focused on the strategic, operational and performance aspects of an organisation and the supply chain for business outcomes such as customer value, competitive advantage or long-term viability. Adapting the theoretical foundations of its progenitor field, SSCM also seeks these outcomes. Carter and Rogers,

> "*Introduce the concept of sustainability – the integration of environmental, social, and economic criteria that* ***allow an organization to achieve long-term economic viability*** *– to the logistics literature, and position sustainability within the broader rubric of SSCM.*" (2008:360).

As with Ahi and Searcy's (2013) definition, it is indicative of the integration of sustainability for the benefit and sustainability of the organisation but also extends it to consider the

sustainable performance of a company's supply chains. However, this is done with the "*clear and explicit recognition of the economic* ***goals of the firm***" (2008:369). Neither is indicative of discourses in alternative fields of literature or from calls across society for a systemic change to how we do business (UNFCCC, 2014). In comparison, Seuring and Müller's definition demonstrates a more holistic, integrated view,

> *"The management of material, information and capital flows as well as* ***cooperation among companies along the supply chain*** *while taking goals from all three dimensions of sustainable development, i.e., economic, environmental and social, into account which are derived from customer and stakeholder requirements."* (2008:1700)

Generally, SSCM researchers examine various aspect of conceptualising sustainability in SCM, under the auspices of an ideal system in which all things are equal (Carter & Rogers, 2008; Seuring & Müller, 2008a; Pagell & Wu, 2009; Beske & Seuring, 2014). It is also recognised that this is value-driven and creates a sustainable advantage. However, an interesting dichotomy has occurred. These same authors that discuss these issues have not recognised that companies operating in the dominant economic paradigm and with the power to institutionalise are developing normative principles, processes and practices based on their economic values, i.e. how they do business, and that these differ fundamentally to other less powerful actors' values. For example, Carter and Roger (2008) base their definition of SSCM by extending the work of Lambert (2008) and Mentzer et al. (2001). Subtly, a critical element has been lost in interpretation. Mentzer et al. (2001) consider how value is created across the whole supply chain and Lambert (2008) does so by considering stakeholders. However, Carter and Rogers consider "*the individual company and its supply chain*… [whereby] *Of course, the social and environmental dimensions of SSCM… must be undertaken with a clear and explicit recognition of the economic goals of the firm*" (2008:368&369). Thus, the power-base is fundamentally altered in the interest of how the focal company creates value.

While the predominant SSCM literature focuses on the integration of sustainability dimensions into SCM, there is a somewhat smaller stream on corporate social responsibility (Andersen & Kumar, 2006; Andersen & Skjoett-Larsen, 2009) and an even more marginal one on ethics (Hall & Matos, 2010). However, in wider society increased public scrutiny, a maturation of an understanding of sustainability and the principles its encapsulates, and a growing expertise account for greater consideration of these elements. At the very least,

the field of SSCM can draw on the learnings of other disciplines, such as sustainable development, globalisation and postcolonial scholars, to help deepen the research community's understanding of the implications of its research (Banerjee *et al*., 2009).

As noted by Carter and Rogers, definitional diversity is common in the early stages of conceptualising a field such as SSCM, but they argue that these differences are "*not as great as one might initially believe*" (2008:364). This study contends that these differences are enough to affect practices in how sustainable supply chains are managed. Specifically, the literature establishes that there is a competitive advantage in a company orientating the supply chain for its own benefit as illustrated. Also, that members of the supply chain have different sustainability principles and priorities. Therefore, the sustainable SCO is dependent on the network interrelationships and the power dynamics of independencies. As such, distinct practices will emerge among different levels of partnership that affect how the processes are integrated.

To understand how sustainable supply chains are managed is to understand the principles conceptualised in how an organisation defines sustainability. Subsequently, the business model is configured based on these fundamental concepts and the degree to which sustainability and stakeholder values are added. This will determine how the network of relationships and its processes and practices are managed to capture these added-values. Yet sustainability requires different, innovative values, models, processes and practices, such as shared value, responsible business models, collaboration and integration processes, and trust and transparency practices (Evans *et al.,* 2017). Therefore, depending on how sustainability is conceptualised and the degree to which it is embedded in the business model will result in different levels of process integration and collaboration across the supply chain and types of practices. This ultimately determines how sustainable the supply chain is, i.e. its sustainable SCO (SSCO). However, no research to date examines how different conceptions of sustainability across the supply chain effect how sustainable supply chains are managed in practice.

2.2.5. Elements of Sustainable Supply Chain Management

As the concept of SSCM has been gaining traction across academia and industry, the focus of understanding 'why' it is necessary is now shifting towards 'how' the two fields of sustainability and SCM merge (Winter & Knemeyer, 2013). Academics are developing theoretical rationale to explain concepts, processes and practices of the conjoint elements.

At the turn of the century, the progenitor field of SCM had reached a similar juncture. At the time, Croxton et al. (2001) provided a detailed study of key business processes. Albeit, their belief that SCM is the integration of key business processes across the supply chain presents limitations for our evolved conceptualisation due to the added element of sustainability. However, their purpose bares relevancy today as the three conjoint elements of network structure, management components, and business processes continue to serve as a schema within which to explore and understand how to manage supply chains (Figure 2.3) (Cooper *et al*., 1997; Winter & Knemeyer, 2013).

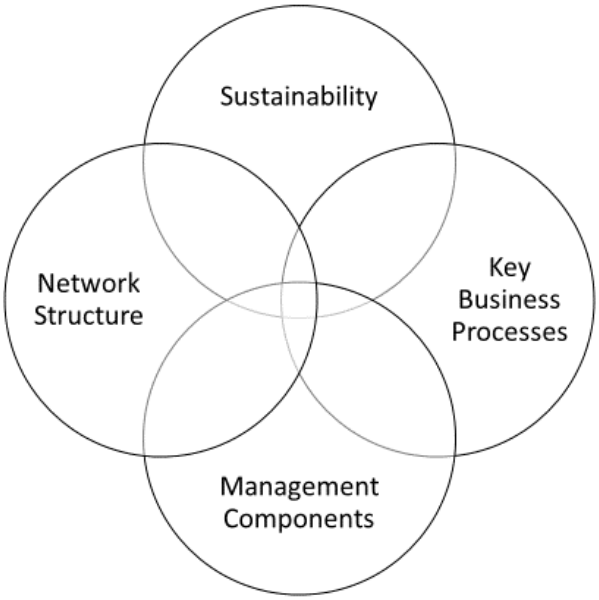


Figure 2.3: Integrating Sustainability as an Element of the SCM Framework

Extensive research exists on management components, i.e. strategy, operations and performance (Sarkis, 2003; Carter & Rogers, 2008; Vachon & Klassen, 2008). As does an extended conceptualisation of the supply chain to a network view (Vachon & Klassen, 2008; Vurro *et al.,* 2009). On the other hand, there is no research that systematically maps sustainability processes across the supply chain. Cooper et al.'s critical question regards "*how can companies achieve supply chain integration if there is no common understanding of the key business processes?*" remains pertinent in this extended model (2001:13). However, just like scholars in the 1990's, when they had to explore a new set of processes under the extended conceptual model of SCM to incorporate horizontal alignment, a new set of processes need to be defined and examined as the conditions of the conceptual model have shifted again.

Network Structure

How a sustainable supply chain is configured differs from that of conventional supply chains. In respect to SSCM, the network structure has been re-conceptualised, and a wider view of stakeholders is taken into consideration. These have become core tenets of SSCM due to the need for a holistic, systemic approach to sustainability. This has led to complex inter- and intra-organisational boundaries based on extended collaboration. As a result, a wider view of stakeholders is taken into consideration.

Some authors propose stakeholders include non-government organisations (NGOs) and non-economic actors and are distinguished from suppliers, customers, and government (and their governing agencies) (Seuring & Müller, 2008b; Miemczyk *et al*., 2012). While others consider stakeholders to include all actors, besides suppliers and customers, such as consumers, community groups, community activists, NGOs, governmental agencies, global competition (Govindan *et al.,* 2014a; Hassini *et al*., 2012; Vachon & Klassen, 2006). Whereas, others cluster all partners in a multi-stakeholder network as stakeholders (Alvarez *et al*., 2010; Miemczyk *et al*., 2012). Vurro et al. (2009) consider stakeholders as all actors in a supply chain network, whether they are partners or not, once they have a stake in the sustainability of the supply chain network such as corporate social watchdogs. Given the relevance of the network view as a tenet of SSCM, this study concurs with Miemczyk et al.'s (2012) classification of stakeholders, i.e. all actors in a network engaged in sustainability. This is not to be confused with partners, as defined by Mentzer et al. (2001), who as network members are directly involved in sustainable activities. The degree to which a company considers stakeholder requirements will be determined by its organisational values and sustainability principles as these will determine the level of interdependencies and collaboration. However, Pagell & Wu (2011) explain that it is not possible to meet the needs of all stakeholders. Therefore, strategic trade-offs have to be made between different priorities due to varying principles.

A holistic view of the entire supply chain network is necessary to ensure the right stakeholders and partners are identified for strategic priority and alignment. As discussed (Section 2.2.1. Defining the Supply Chain – Network Structure), network centrality and density are power mechanisms determine how an organisation can exert influence over the network of interorganisational relationships. From a strategic management perspective, it is important to understand how to use these mechanisms to determine the

value proposition, create legitimacy, institutionalise values, norms and behaviours, and orientate the supply chain for sustainable competitive and collaborative advantage. This places a different emphasis on practices compared to SCM (Vachon & Klassen, 2008; Sarkis, 2012; Chen & Paulraj, 2004). It is argued that there is a move away from power-based relationships to a greater sense of mutuality and trust (Vachon & Klassen, 2006; Chen & Paulraj, 2004). However, power is still exercised but the focus is emphasising a change in practices to a non-mediated form that encourages collaborative relationships. Overall, evidence suggests variances and changes in practices across the supply chain due to a wider view of stakeholders being taken in managing the network of relationships.

Management Component

When reconceptualising the SCM model to integrate the sustainability dimension, it is necessary to consider how the management component and sustainability inter-relate; how relationships and processes are managed, the links that facilitate these and the practices among these.

From a relationship management perspective, it is well-established that SSCM necessitates the consideration of multiple stakeholders, partnerships and collaboration (Seuring & Müller, 2008a; Vachon & Klassen, 2008). Seuring and Gold (2013) caution that appropriate approaches must be identified to manage partnerships due to the power asymmetry of information propriety and relinquishing control. Sarkis also raises the issue of the diversity of perceptions and preferences, alongside how strategic decision-making will affect network stakeholders and, therefore, "*considering critical factors and their interdependencies is necessary for accomplishing this goal.*" (2003:405). As such a range of approaches and practices have emerged. Sarkis (2003) provides a strategic decision-making framework, identifying relationships and the non-linear, multi-attribute links for effective SSCM. Gunasekaran et al. (2015) adopt Spekman's 'Collaborative Framework' for GSCM based on 'green' benefits, relationships, integration and collaboration to help focal companies become greener. While collaboration is a key concept in SSCM, Vachon and Klassen describe a nuance in that, "*upstream practices were more closely linked with process-based performance, while downstream collaboration was associated with product-based performance*" (2008:299), highlighting the heterogeneity of links and practices across the chain.

Drawing on elements of the management component – relational and structural - Storey et al. (2006) contend that the tenets of management are alignment and integration. However, this 'process' view is limited as it does not consider the necessity of collaboration that is a core tenet of SSCM. As Lambert explains, "*SCM is the integration of key business processes across the supply chain and the processes can be linked successfully only if the relationships with the other members of the supply chain are managed properly*" (2003:235). Furthermore, Kleindorfer, Singhal and van Wassenhove (2005), Vachon and Klassen (2006), Cheng, Yeh and Tu (2008), Beske and Seuring (2014) stress the importance of SSCM maintenance. Therefore, it is suggested that the phases of management are alignment, implementation (i.e. integration and collaboration) and maintenance.

Another unique facet of SSCM is that it increases complexity both structurally and relationally due to the integration of the TBL. Multiple authors examine these components in relation to SSCM, while also extending the list (Appendix II: *Management Component Structural and Relational Links in SSCM*) (Kleindorfer *et al.,* 2005; Vachon & Klassen, 2006; Carter & Rogers, 2008; Cheng *et al.,* 2008; Linton *et al*., 2007; Seuring & Müller, 2008b; Wu & Pagell, 2011; Sarkis, 2012; Ahi & Searcy, 2013; Beske & Seuring, 2014). The additional structural links include resource fitness, transparency and traceability, organisational orientation, resilience, continuous improvement and holistic coordination. The additional relational links include cooperation, shared values, vision, innovation, and long-term focus (Table 2.2).

Table 2.2: List of Structural and Relational Links in SSCM

Structural links	***Relational links***
• Planning	• Management methods
• Control methods	• Power
• Workflow structure	• Leadership
• Organisational structure	• Risk
• Communication structure	• Reward
• Resource fitness*	• Culture
• Transparency & traceability*	• Attitude
• Organisational orientation*	• Trust
• Resilience*	• Commitment
• Continuous improvement*	• Cooperation*
• Holistic coordination*	• Shared values*
	• Vision*
	• Innovative*
	• Long-term focus*

* Denotes new links from the addition of the sustainability elements from the extant SSCM literature

The focus on key practices is evolving as a result of changes in how to manage relationships and the relational and structural links that facilitate this. Existing constructs have been examined empirically, however, in each case their conceptualisation has adapted due to the sustainability effect. The core tenets of sustainability are changing the management component and the links it utilises. Leadership is still critical, but trust and coordination gain importance in attitude and management methods due to increased collaboration. This requires trust, cooperation, shared values, vision, holistic coordination, knowledge management and communication. A holistic view of how to manage the supply chain, required due to increased public scrutiny and accountability, leads to transparency and traceability. These components are necessary to align, implement and maintain sustainability processes (Figure 2.4). The SSCM Component Model explains the phases in managing sustainability processes and the links required to do so.

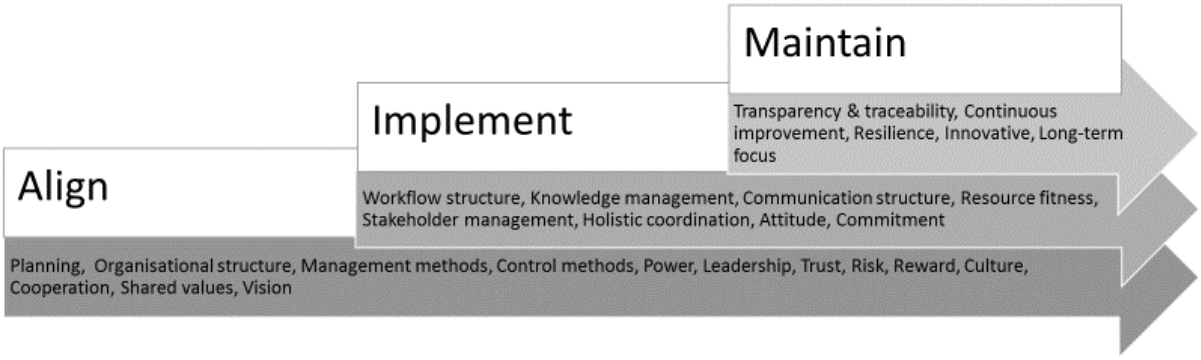


Figure 2.4: SSCM Component Model– Phases in Managing Sustainability Business Processes and the Links Required to do so

Vachon and Klassen (2006) demonstrate how socially complex interrelationships are necessary for the information and knowledge exchange that underpins integration. This emphasises the need for a network view that captures the complexity beyond dyadic and triadic relationships. Extant literature demonstrates the increase of communication and information and knowledge exchange links to enhance collaboration (Vachon & Klassen, 2006; Carter & Rogers, 2008; Sarkis, 2012) This is resulting in a change of corporate practices to manage reputation and legitimacy with stakeholders (Carter & Rogers, 2008) and strengthening system boundaries based on sustainability value (Sarkis, 2012). Sarkis (2012) explains how "*values, norms and mores sharing*" of organisational cultures "*play a significant role in greening organisations and their supply chains*" (2012:207). However, he explains that as well as organisational orientation, network determinants, such as markets and stakeholder drivers as the management of 'supplier and customer partnerships and

networks' present opportunities in competitive advantage, play key roles in SSCM. There are a range of internal and external drivers that determine the strategic SSCO (Wu & Pagell, 2011; Zhu & Geng, 2013). These drivers have led to a range of approaches, polarised as risk- and opportunity-orientated strategies that result in relevant links being selected such as risk or innovation (Harms *et al*., 2013).

Sustainability Processes

Sustainability processes are business processes that integrate economic, environmental and social dimensions. SSCM literature also indicates that 'process' and 'practice' terms have been used interchangeably. The proliferation of sustainability concepts across the supply chain means that how sustainability processes are managed in practice necessitates the clarification of these terms. The management of processes are localised to the homophilous associations that are shaped by determinant forces, i.e. network determinants and sustainability agenda of any given member resulting in arcs of integration. Furthermore, as focus shifts from 'why' to 'how' to manage sustainable supply chains, this infers that the groundwork has been laid and there is a critical mass of literature that has established the concepts, elements and activities of the field. Research exists on SSCM practices (Morali & Searcy, 2013; Beske *et al.,* 2014; Govindan *et al.,* 2014b; Vachon & Klassen, 2006; Carter *et al.,* 2017) (Appendix III: *Summary of Key SSCM Practices in the Literature*). Operational and logistical processes are omitted as this research model focuses on business processes, therefore excluding the work of Govindan, Azevedo, Carvahlo and Cruz-Machado (2014b), which examines waste elimination, total quality management, just-in-time, and cleaner production processes.

Based on this study's conceptualisation of SSCM (Figure 2.3), some of these practices are construed as processes; others are classified as management component links. The literature reviewed in this thesis synthesises and extends existing classifications of processes and practices to identify key processes across the supply chain (Vachon & Klassen, 2006; Zhu & Sarkis, 2004 & 2005; Morali & Searcy, 2012; Beske *et al*., 2014). Regards processes, there seems to be ambiguity as they refer to production and operational processes, (Zhu & Sarkis, 2006; Zhu *et al.,* 2007; Seuring & Müller, 2008b) alongside Beske et al. (2014) and Vachon and Klassen (2008) who use the term interchangeably to encompass operational, production, manufacturing and logistical processes as well as business or management processes.

Following the example of (and to paraphrase) Burgess et al. (2006), in the absence of consensus on a common set of SSCM processes, this study consolidates, to a reasonable list, the constructs proposed by the aforementioned scholars by focusing on the commonalities amongst these lists. The outcome was a set of six processes including governance, strategic planning, design, integration, collaboration and performance monitoring and evaluation. Based on the themes identified in the literature relating to each process, a list of literature review search terms was created (Table 2.3). Furthermore, a secondary list of search terms based on features of SSCM processes was created based on this narrative review of the literature (Table 2.4).

Table 2.3: Key Sustainability Processes in SSCM from the Literature

Key sustainability business process	***Associated themes in the literature***	***Literature review search terms***
Governance	• Governance (Morali & Searcy, 2012) • Standards (Morali & Searcy, 2012) • Policy (Morali & Searcy, 2012) • Risk management – standards (Beske et al, 2014)	• **Governance** • Corporate Social responsibility/CSR • Standard* • Policy • Code • Executive* • Legislat* • Regulat*
Strategic planning	• Looking forward on SSCM – plans, brief descriptions, or strategic objectives or goals (Morali & Searcy, 2012) • Strategy (Morali & Searcy, 2012) • Orientation (Beske et al., 2014) • Pro-activity (Beske et al., 2014)	• **Strateg*** • **Plan*** • Goal* • Objective* • Orientat*
Design	• SC re-conceptualisation – stakeholder view (Beske et al, 2014)	• **Design*** • Concept*
Integration	• Integration of (Morali & Searcy, 2012) - CSR practices - Sustainability principles - Performance measures	• **Integra***
Collaboration	• Collaboration (Zhu et al., 2005) • Collaboration (Morali & Searcy, 2012) • Continuity (Beske et al., 2014) • Collaboration (Beske et al., 2014) • C-evolving (Beske et al., 2014) • Environmental collaboration (Vachon & Klassen, 2006)	• **Collaborat*** • Cooperat* • Coordinat* • Partner* • Relation*
Performance monitoring & evaluations	• Performance measurement (Morali & Searcy, 2012) • Monitoring (Morali & Searcy, 2012) • Reporting (Morali & Searcy, 2012) • Reflexive control (Beske et al., 2014) • Risk management - Individual monitoring and certification (Beske et al., 2014) • Pro-activity - life cycle assessment (Beske et al., 2014) • Knowledge assessment	• **Performance*** • **Monitor*** • **Evaluat*** • Report* • Assess* • Indicat* • Certificat*

	• Environmental monitoring (Vachon & Klassen, 2006)	• Life cycle assessment • LCA • Control

Table 2.4: Search Terms for SSCM Process Features

Process keywords:	PROCESS* MECHANISM* ACTIVIT* ACTION* PRACTICE* CONCEPT* INTEGRAT*

2.2.6. Issues Arising and Research Questions

The purpose of the research project is to gain a deeper understanding of how the element of sustainability integrates with SCM elements to create a SSCM Framework. For a company's supply chain to be sustainable all three dimensions of sustainability need to be fully integrated. Literature indicates that there is a limited capacity to integrate all three dimensions of sustainability due to the varying levels of understanding of network members (Seuring & Müller, 2008b; Taticchi *et al.,* 2014; Wolf, 2011) and the contextual setting (Vurro *et al*., 2009; Miemczyk *et al.,* 2012). The interplay between sustainability strategies along the supply chain and the context in which they are embedded, relationally and structurally, is worth investigating systematically (Jones *et al*., 1997; Vurro *et al*., 2009). This study explores the business processes in SSCM from varying sustainability perspectives. It takes into consideration the organisational orientation of the business in the context of the complex network interrelationships to shape SSCO. It has also indicated that relational and structural links are managed in varying approaches that indicate styles of practice.

By introducing sustainability to the schema, this study focuses on the interaction between the elements to understand how sustainable supply chains are managed, by asking the following primary and secondary research questions:

Primary question:

1. How do varying sustainability principles among stakeholders in the supply chain network affect the management of processes in practice?

Secondary questions:

1.1. To what extent, and in what ways, are sustainability principles related to SSCM?

1.2. What are the key sustainability business processes?

1.3. What are the mechanisms in the relationships between principles, processes and practices?

1.4. What are the ethical implications of this for dependents across the supply chain?

Other supplementary questions of interest include:

- *What are the characteristics of SSCM practices?*
- *To what extent, and in what ways, do principles shape practices?*
- *What is the relationship between the organisation and the network in determining how the supply chain is managed sustainably?*

The first step in answering these questions is a systematic literature review of sustainability processes to identify the key ones. This is followed by a theoretical discussion on principles, processes and practices, that provided the themes for empirical exploration and conceptualisation of a SSCM conceptual framework.

2.2.7. The Food & Beverage Sector and Sustainable Supply Chain Management

As sustainability makes waves across the corporate world, the spotlight is shone on the £1.5 trillion food and beverage (F&B) sector. This sector has proved a rich arena to explore sustainability impacts across the supply chain. It provides a context to understand business and management responses to global sustainability issues and the correlative impacts on business models and economic systems. This is due to megatrends that agriculture practices, food production and food consumption directly contribute to or are affected by.

While not exhaustive, Appendix IV: *Relevant Literature on F&B SCM* is a good indicator of trends and themes as it demonstrates the spectrum of SSCM elements researched. The breadth of issues includes the environment, technology, economy and social considerations (Maloni & Brown, 2006). While these sustainability issues span the entire supply chain generally they focus on specific segments. Increased demand uncertainty and variability in consumer tastes, have led to changes in SSCM practices that are creating challenges in system and business practices (Kaipia *et al.,* 2013). Authors have been providing insights into how sustainability is impacting on network structure and changing practices (Maloni & Brown, 2006; Alvarez *et al.,* 2010). The most dominant element is the

management component, with multiple authors examining a broad range of links which are primarily structural such as control methods, knowledge management, and communication structure explicit in the research agenda. The most common of which is performance and control methods (Hamprecht *et al.,* 2005; Yakovleva *et al.,* 2012; Kaipia *et al*., 2013; Del Borghi *et al.,* 2014).

For those who have observed practices, there is a consensus that different practices emerge from various communities. Pullman and Dillard (2010) explore how an organisation's values shape design and implementation of management models. Alvarez et al. (2010) make two interesting observations on practices from the perspective of the focal company: firstly, a company's sustainability program can make a significant impact on supply chain practices; and secondly, a 'common goal' created by these programs can create a shared vision and benefits for all members. However, others state that due to the nascence of integrating sustainability into SCM, practices are emergent and as a result, the institutional pressure regards these uncertain (Grekova *et al.*, 2014; Darkow *et al*., 2015).

Another interesting aspect of the literature, substantiating Beske et al.'s (2014) findings, that the majority of research is from the perspective of MNC focal companies downstream, particular business-to-customer (B2C) brand manufacturing companies. Finally, in their review of key issues and challenges in sustainable food SCM, Li and Wang state that it is critical for stakeholders to "*look beyond their organisational boundaries to develop sustainable food supply chains*" (2014:2). The position of organisations in the network structure influences the adoption of practices which require various resources and capabilities that some are better equipped to adapt than others. However, there is a limited discourse on institutionalising, legitimising, influencing, facilitating or preventing of practices and the power dynamics and dependence asymmetries this creates (Glover *et al.,* 2014; Grekova *et al.,* 2014; Touboulic *et al*., 2014).

2.3. Systematic Literature Review

This section describes the systematic literature review findings, presented in two sections: classification analysis and content analysis, from which a model of key business processes in SSCM is created.

2.3.1. Classification Analysis

Two databases were used to trial search strings - 'Web of Science' and 'EBSCO: Business Source Premier' (Appendix V, Table V.1). Two test strings were compared to allow the interrogation process features and themes (Appendix V, Tables V.2 & V.3). Furthermore, filter processes were applied to refine the quality and suitability of the literature in each interrogation. As a result, over 4,500 papers were identified. This was refined to the review of 201 academic articles published since 1987 and the advent of sustainable development. 78 articles in search string 1 were analysed in-depth to identify the key processes discussed in SSCM process literature. A further 148 articles were reviewed in search string 2, to provide statistical insights into the frequency of these processes across SSCM literature. For a full list of referenced articles, refer to Appendix VI.

The classification framework presents a critical analysis of the highest referenced and cited articles selected for this review (Table 2.5).

Table 2.5: Systemic Literature Review Framework Descriptive Dimensions Investigated

Grouping		Dimensions	Rationale (identify)
1.	Analysis of publication data	Number of publications	Size of research field
		Time distribution of publications	Trends in the research field
		Most popular journals for publication	Journals where research is published
		Most prolific authors	Leading researchers
2.	Analysis of citation data	Number of citations	Size of body of knowledge
		Time distribution of citations	Trends in the body of knowledge
		Most frequently cited journals	Relevant journals
		Most frequently cited authors	Leading authors
		Trend of citations of the most frequently cited authors	Dynamics of the static nature of authors perceived as leaders

Source: Taticchi et al. (2014)

Analysis of Publication Data[3]

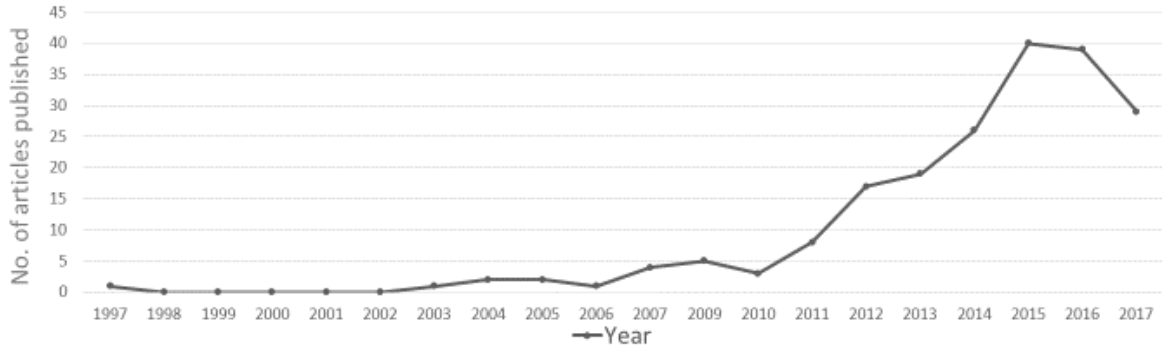
Of the 4,700+ articles identified, 201 articles were reviewed and 78 analysed in-depth, of which there was a spread across 35 publications, demonstrating the vibrancy and diversity of research in the field of SSCM processes and practices.

Trends in time distribution are indicative of an embryonic field (post-1987) with no relevant specific until 1997. There is an interesting phenomenon in terms of the time distribution of publications as interest in processes and practices does not establish itself

[3] Analysis of publication data includes figures for Search Strings 1 & 2, unless otherwise stated.

until 2004 with momentum gaining in 2011 (Table 2.6). This could be due to factors such as a shift from 'why' to 'how' in SSCM studies or trends in terminology.

Table 2.6: Time Distribution of Publications



The ten most frequently referenced journals contain five or more articles (Table 2.7). From the sources reviewed, interesting insights are offered up. One of the filtering mechanisms was the quality of the journal. Initially, the AJR (formally ABS) academic journal guide was selected as a peer review quality measure, using 2 or more rating. However, by selecting this mechanism a key journal would have been omitted – *Journal of Cleaner Production.* Inclusion of this journal is critical as it is the most popular journal for publication and citations (2,047). It has JCR impact factor of 5.959 and SJR of 1.609 and is therefore, included in the review. Given the dominance of production and operations journals, these findings are indicative of processes interpreted as production, operations and manufacturing activities, with practices construed as business tasks. There appears to be a growth trend among the journals publishing this body of research, including environmental production and, to a lesser, emerging degree, ethics.

Table 2.7: Most Frequently Referenced and Cited Journals

Journal	References	AJR rank	JCR rank	SJR rank	Citations
Journal of Cleaner Production	44	-	4.959	1.609	2047
International Journal of Production Economics	21	3	2.782	2.453	827
Supply Chain Management - An International Journal	15	3	2.731	0.149	376
Sustainability	15	2	1.343	0.473	129
Transportation Research Part E: Logistics and Transportation Review	15	3	2.279	1.897	541
International Journal of Production Research	12	3	1.693	1.286	857
Computers & Industrial Engineering	8	2	2.623	1.468	22
International Journal of Operations & Production Management	7	4	2.252	1.996	666

OMEGA	6	3	3.962	3.453	187
Journal of Business Ethics	5	3	1.837	1.291	169

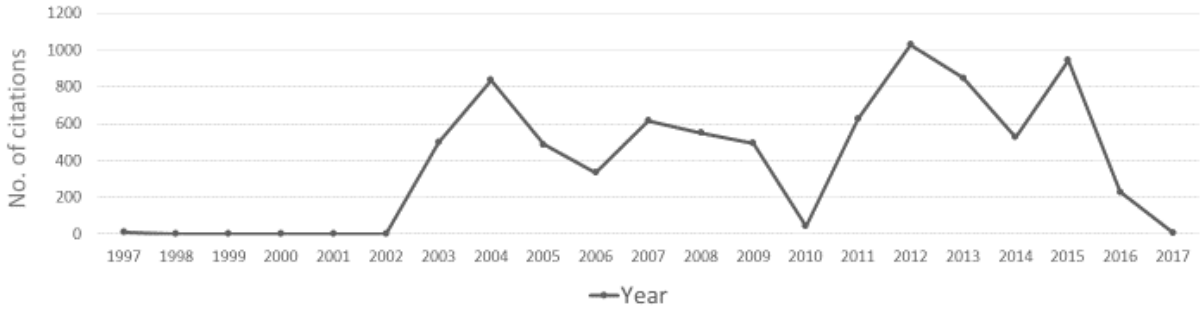
All AJR, JCR and SJR rankings are from 2015 figures.

Overall, there were 463 published authors, 172 were primary authors. The most frequently published authors included Joseph Sarkis (15 articles), Zhu (13 articles), Lai (6 articles), Govindan (6 articles) and Diabat (4 articles); Zhu was the most prolific first author with twelve articles. Zhu and Sarkis co-authored ten papers, and Lai co-authored six. This research team have the broadest time span with publications since 2003 (Sarkis) and joint publications a year later. Their studies are primarily focused on GSCM performance and practices. Govindan explores broad concepts in both SSCM and GSCM literature, with a focus on GSCM performance, risk, strategy and implementation. Diabat generally examines implementation issues and decision-making in GSCM, citing Sarkis's (2011) definition of GSCM processes and practices. Govindan and Diabat are more recent among in terms of time distribution of articles featured since 2013. There were 14 authors referenced in 3 articles, 52 authors referenced twice, and 385 authors referenced once.

Analysis of Citation Data

In total, there were 8,075 citations spread across 201 articles, 35 publications and 463 authors, illustrative of the size of the body of knowledge. Of the highest citation data retrieved from both databases, Web of Science provided a more comprehensive listing of citation reports, indicating the preference of this search engine.

Table 2.8: Time Distribution of Total Annual Citations



The time distribution of the citations is rather erratic and does not align with the time distribution of publications (Table 2.8). An interesting observation between the two peak pitches - 2003 – 2009 and 2011 – 2015, is that in the first period 19 articles were published, the highest of which was the seminal paper by Zhu and Sarkis (2004) with 765 citations. Collectively they published six articles, totalling 2,367 of the 3,809 citations for that period.

In comparison, between 2011 – 2015, 110 articles accounted for 3,976 citations. Bearing in mind that to be able to compare similar timeframes, 2016 and 2017 results could be included in the second set but the dramatic fall in citations does not qualify these years as 'peaks'. Therefore, it is concluded that Zhu and Sarkis's understanding of GSCM processes and principles have profoundly influenced the focus of the topic.

The most frequently cited journals include the highest, *Journal of Cleaner Production* with 2,047 citations. Of the most frequently accounted journals (Table 2.9), the top ten most frequently cited account for 6,708 of the -8,075 - total number of citations for all articles reviewed. Therefore, the most relevant journals in the subject area primarily focus on production and operations research, rather than strategic management and business processes, which indicates a gap for further research.

Table 2.9: Most Frequently Cited Journals

Journal	Total no. of citations
Journal of Cleaner Production	2,047
International Journal of Production Research	857
Journal of Operations Management	884
International Journal of Production Economics	827
International Journal of Operations & Production Management	666
Transportation Research Part E: Logistics and Transportation Review	541
Supply Chain Management - An International Journal	376
OMEGA	187
Decision Support Systems	184
Journal of Business Ethics	169

The leading authors in the field (Table 2.10) are Zhu & Sarkis with the most highly cited paper – 765, and 10 papers they co-authored, totalling 2,614 citations (Table 2.10).

Table 2.10: Most Frequently Cited Authors

Author	Total number of citations	Primary author	Total number of articles	Total number of journals	Reference articles*
Sarkis, J	3179	1	15	10	14, 50, 79, 80, 126, 191-200
Zhu, Q	2765	11	13	8	59, 189 – 200
Lai, K	1023	0	6	6	191-194, 196, 200
Vachon, S	511	2	2	2	154, 155
Geng, Y	352	0	2	2	195, 200
Klassen, R	334	0	1	1	154
Seuring, S	272	1	3	2	15, 59, 133
Sheu, J	252	2	3	2	29, 135, 136
Jajarian, A	181	0	3	3	39, 57, 75
Azevedo, S	142	2	3	3	11, 12

* see Appendix VI

Their preferred journals include *Journal of Cleaner Production* featuring six times with 1,186 citations, *International Journal of Production Research* twice with 370 citations, and *International Journal of Production Economics* twice with 315 citations. Again, a bias in the research field and an opportunity to explore SSCM business processes in more detail is demonstrated. In this table, it is worth bearing in mind that the number of unique articles is 18 (of the 30 articles featured). Zhu and Sarkis published 10 articles in this list together; Lai co-authored with either/both of them 6 times and Geng twice. Vachon and Klassen co-authored an article together. Furthermore, the highest cited articles include (Table 2.11):

Table 2.11: Most Frequently Cited Articles

Author(s)	Citations	Reference articles*
Zhu & Sarkis (2004)	765	197
Sarkis (2003)	489	126
Vachon & Klassen (2006)	334	154
Zhu, Sarkis & Lai (2015)	312	193
Zhu, Sarkis & Geng (2005)	293	195
Zhu, Sarkis & Lai (2007)	287	194
Zhu & Sarkis (2007)	274	198
Zhu & Sarkis (2008)	259	199
Cheu, Chou & Hu (2005)	194	135
Seuring & Müller (2012)	192	133

* see Appendix VI

Therefore, looking at trends in the most frequently cited authors, as to be expected, those highest cited generally fall in the first peak pitch, c.2003 - 2009. This is indicative of the length of time they have been published but also that they are seminal authors. Looking at the latter peak pitch, c.2011 – 2015, Zhu, Sarkis and Lai continue to dominate the research field with 878, 809 and 736 citations respectively. Seuring and Jafarian also feature with 264 and 181 citations respectively. Other emerging authors highly cited in this time period include Müller who co-authored an article with Seuring with 192 citations (2008b) and Wang, Lai, XF and Shi who co-authored a paper on network design with 184 citations (2011).

2.3.2. Content Analysis[4]

This section will firstly discuss the themes and trends observed in contextualising SSCM process research. After which, it will identify the key processes and examine definitions and

[4] Analysis of articles references Appendix V, Table V.2: search string 1 – 'process features', unless otherwise stated.

properties to build a model of SSCM key business processes. The articles analysed provide detailed insights into themes, trends, definitions and key processes.

Themes and Trends

The selection of search terms in Search String 1, i.e. process and practice, provided insights into how the terms are interpreted and qualified.

The literature was dominated by GSCM - 46 articles reviewed focused on GSCM, compared to 32 SSCM definitions - consistent with Ahi and Searcy's (2013) findings. The most cited definition of SSCM was Carter and Rogers (2008) with five direct quotes. However, GSCM, dominated the literature, particularly the seminal work on GSCM practices by Zhu, Sarkis and Lai cited 33 times; of which 27 articles cite GSCM practices and 16 specifically examine aspects of these (Table 2.12). Often, they offer no explicit definition of GSCM, similar to Ahi and Searcy (cited twice) (2013) and Vachon (2007); rather they explain that there is no consensus due to the multiple interest areas that the topic covers. However, when they offer an explicit definition it is broad and indicates their focus on production processes, i.e. "*GSCM, integrating environmental concerns into product flows within and beyond organizational boundaries"* (Zhu *et al*., 2011b:809). Whereas, Seuring & Müller (2008), focusing on the broader, holistic and integrated concept of SSCM, discuss the importance of companies engaging in practices to improve the sustainability of their businesses processes.

As was expected, the terms 'process' and 'practice' were used interchangeably, with 'practices' commonly referred to as management activities, tasks or routines (Table 2.12). Several authors used the same definition of SSCM business processes and practices as in this study; 24 of the articles demonstrated a nuanced view on practices as 'types' or the adoption of tasks 'in practice'. For example, Seles, de Sousa Jabbour et al. (2016) discuss how underlying concepts make up SSCM practices; while Zhu, Sarkis & Lai examine the coercive and cooperative practices shaped by an organisation's political power and institutional legitimacy. In fact, Institutional Theory and it's coercive, mimetic and normative behaviours of communities shaping the practices of others feature across 12 articles. An interesting observation was that eight of references to the adoption of practices were SSCM studies, whereas the 12 that considered types of practices took a GSCM perspective, particularly Zhu and Sarkis's work on internal and external practices (8 articles).

Table 2.12: Trends in Conceptualising Processes and Practices

Focus	Description in the literature	Total number of articles	Reference article*
Practices	Types	15	25, 44, 63, 65, 70, 117, 118, 170, 173, 181, 189, 189, 192, 194, 196, 199
	Adoption	9	2, 7, 51, 108, 132, 147, 155, 156, 164
GSCM practices (Zhu & Sarkis, 2007)	Eco-design; Internal environmental management; Green purchasing; Customer cooperation with environmental concerns; Investment recovery	16	12, 21, 51, 53, 56, 63, 64, 75, 92, 125, 140, 154, 174, 176, 181, 191
Business process	Literature that specifically examines managerial business processes	53	1, 2, 7, 12, 15, 21, 23, 24, 25, 27, 41, 43, 51, 53, 56, 57, 58, 61, 65, 75, 79, 89, 102, 106, 108, 114, 117, 118, 128, 129, 131, 132, 133, 139, 140, 142, 147, 153, 155, 156, 158, 164, 168, 170, 172, 173, 176, 189, 192, 193, 197, 198, 199
	Literature that provides definitions	11	7, 12, 25, 58, 61, 108, 114, 118, 133, 153, 155
	Business process measures that meet the definition provided in this review	29	2, 15, 23, 27, 51, 56, 57, 65, 75, 79, 89, 93, 106, 114, 117, 129, 131, 139, 142, 153, 156, 158, 170, 172, 173, 176, 189, 198, 199

* see Appendix VI

Another interesting observation was the focus of the research area. Thirty-seven studies were based on the manufacturing type companies, 27 on focal companies, with a cross-reference of 11. This infers that our understanding of SSCM research is derived from the perspective of powerful downstream focal companies; helping them be more efficient and effective at embedding sustainability and improving their performance and competitive advantage. Building on the theme of the power of downstream focal companies, 28 of the manufacturing and 25 of the focal company studies, discussed aspects of power, influence and leverage. Themes include leveraging resources and relationships to influence practices, leveraging practices to influence performance and stakeholders influencing practice; and how certain mechanisms such as power and trust shape practices (Table 2.13). There are limited studies on ethical issues or alternative business models, particularly upstream, and how different sustainability and business principles, culture and orientation may behave and provide alternative findings.

Table 2.13: Themes on Power Influencing Practices

Theme	Description	Total number of articles	Reference article*

Mechanism	A range of mechanisms that a company can leverage to shape practice and drive sustainability agenda	9	2, 11, 23, 75, 89, 106, 192, 196, 197
Power & trust *(a subset of mechanisms)*	Embedding sustainability in supply chains is shifting the dynamics of power & trust, particularly in more collaborative practices	4	1, 51, 117, 164
Practices sustainability outcomes	Practices influence outcomes such as corporate sustainability, supply chain sustainability performance, efficiency and effectiveness	4	11, 25, 133, 194
Communities	Relationships shape practice, particularly dominant members downstream in positions of power	10	7, 24, 43, 44, 58, 89, 104, 142, 181, 196
Stakeholders	Stakeholders exert power and influence over sustainability of supply chain	10	7, 23, 58, 65, 75, 79, 93, 129, 154, 169
Focal company	Powerful actors, particularly downstream, influence practices of other members	30	7, 11, 21, 24, 25, 27, 51, 51, 58, 61, 75, 84, 93, 101, 104, 106, 133, 141, 142, 174, 153-155, 164, 176, 189, 191, 192, 195, 196
Leveraging resources & capabilities	Companies leverage resources such as knowledge, finances, market share, physical to influence practices	14	1, 23, 24, 41, 44, 58, 117, 129, 133, 142, 164, 181, 189, 198
Leverage purchasing power	Companies leverage contracts and purchasing power to influence practices	7	27, 43, 64, 129, 164, 196, 197

* see Appendix VI

The key processes were identified by the frequency with which they were referenced in each article in search string 1 and the frequency with which they were referenced in the titles reviewed in search string 2 (Table 2.14). As is evident from the statistics, while all processes except design are considered significant in the literature, in actual research terms there is a limited spread of research on specific processes proportionally across the SSCM literature. Governance and performance dominate this: however, performance literature has a broader time distribution since 2004, whereas governance is a more recent trend since 2008 (with particular focus in the past three years - 60%). Also, even though design has a lower statistical ranking than the other processes when considered in terms of key features of SSCM process literature, it ranks third in the spread of studies on these key processes across SSCM titles (30%). In other words, research indicates that all these processes are important. In other words, research indicates that all these processes are important. These will be examined in more detail in the following section.

Table 2.14: Statistical Frequencies of Key Processes across 'Features' and 'Themes' Reviews.

Key process	Search string 1 - Features		Search string 2 - Themes	
	Total number of articles	% of articles analysed (out of 78)	Total number of articles	% of articles reviewed (out of 148)
GOVERNANCE	77	99%	97	56%
STRATEGIC PLANNING	78	100%	23	13%
DESIGN	52	67%	35	20%
INTEGRATION	76	97%	24	14%
COLLABORATION	74	95%	17	10%
PERFORMANCE MONITORING & EVALUATION	77	99%	97	56%

For a break-down on each process theme see Appendix VII.

Notably, there is an addition to the process model – stakeholder management. This had been identified in the literature as a structural link in the management component. However, on closer analysis, 60 out of 78 articles cited stakeholder management. This is 77% of articles featured, making it arguably more important than design, and therefore ranked as a key business process. As such, any reference to stakeholder management in previous sections has been removed and rewritten in the context of this research's SSCM business process model.

Key Sustainability Business Processes

Governance - Corporate responsibility has extended the governance of an organisation beyond its direct realm of influence and control, across boundaries into the supply chain network. This involves executive, regulatory and policy responsibilities at a strategic level from which management receive their mandate and directive.

Embedding sustainability in core business activities firmly places the executive function in a central and powerful position. An important sub-process is the executive function critical to embedding sustainability in SCM; 30 articles cited support from top management in this capacity (Table VII:1). For example, Zhu et al. (2012b) examine how organisational strategy shapes practice and the importance of the executive function in this capacity. Marshall et al. (2015) examine how environmental alignment may be influenced by three institutional isomorphic pressures used by executives to influence and manipulate orientation. A key aspect of this function is ensuring strategic orientation and performance measures are met.

The regulatory sub-process focuses on the legal obligations of the board of directors; 67 articles emphasised this aspect (Table VII.1). Zhu et al. (2012b) explain how regulation

forces compliance that restricts opportunistic behaviours but also increase operational costs. However, Zhu et al. (2007) also explain that pro-active companies go beyond these requirements while reactive companies only seek compliance. Ortas et al. (2014) present a study on how varying regulatory regimes and cultural settings create different relationships between sustainable supply chain performance and financial performance. Busse et al. (2017) further explain that managing sustainability varies globally given these cultural and regulatory differences, particularly between Europe and China.

Another crucial sub-process of governance is policy and standards, as they provide guidelines for supply chain design and relationships (cited 71 times). Brandenburg et al. (2015) and Waller et al. (2015) consider the power of governance mechanisms in shaping the sustainability of supply chains. The inference is that companies take responsibility for inter-organisational processes by providing standards and policy as guidelines for the management component (Andersen & Skjoett-Larsen, 2009). This has led to research into sustainable supply chain design, strategic decision-making and governance network interactions (Vurro *et al.,* 2009), especially in terms of power and influence (Tachizawa & Wong, 2015) as a network approach is taken to build collaborative advantage (Chen & Paulraj, 2004). This creates questions as to where the locus of decision making, power and governance lies.

Strategic planning **-** Hines (2013) explains that there is no 'universal supply chain strategy' but rather a range of strategies, structures and relationships through the integration and synchronisation of financial and service processes. Regarding SSCM, Seuring & Müller (2008b) concur, explaining how the range and complexity of strategies increases due to the inherent tensions that sustainability introduces. Strategic planning is a key process as it addresses several issues. It identifies sustainability aims and objectives and outlines the framework for SSCO (Chan *et al*., 2012; Hsu *et al.,* 2016).

Strategic planning establishes the aims, objectives, tasks and performance indicators of sustainability dimensions. It is critical to integrate the TBL into corporate strategy (Pagell & Wu, 2009), and to create a common understanding of sustainability (Boons *et al.,* 2012) strategy alignment/orientation (van der Vorst *et al.,* 2009; Beske *et al.,* 2014), joint goal setting (Miemczyk *et al*., 2012), and planning and activity (Yu *et al*., 2014) across the supply chain. This is done by extending the boundary of responsibility (Gimenez *et al*., 2012) and

understanding of how value is created for all partners (Vurro *et al*., 2009). Thus, it serves as the dimensions for the design and performance of the supply chain.

Strategic aims and objectives featured heavily in the articles analysed (Table VII.2). A goal is the object or aim of a strategic action and on which its effects can be examined on task performance (Locke & Latham, 2002). Therefore, a goal is performed by a process and as such affects performance through four mechanisms: (1) as a directive function, directing efforts towards focused activities, increasing efficiency and effectiveness; (2) different goals have different levels of effort and difficulty, referred to as the energising function; (3) strategic goals (those that have increased complexity and difficulty and need time to execute) take greater levels of commitment, i.e. persistence and effort; and (4) utilise task-related knowledge and strategies to affect action (2002:707).

In terms of power and decision-making, organisational orientation is a driver of practices and the sustainability of the supply chain (Chan *et al*., 2012). Touboulic et al. (2014) explain how power can be effective in achieving sustainability strategies as dependence on another's resources means organisations seek out relationships with one another. In order to manage the imbalance, this creates, common goal setting can act as an important phase in the process towards greater integration and collaboration by establishing a more *participative* rather than *dictatorial* mode of relations as described by Vurro et al. (2010), for example. This can be done by taking into consideration the sustainability perceptions and preferences at a macro and local level.

Design**:** There has been a growing awareness for the necessity to integrate sustainability criteria into the processes within supply chains (Linton *et al*., 2007; van der Vorst *et al*., 2009; Metta & Badurdeen, 2013). Designing a sustainable supply chain considers the 'total life-cycle' (including reverse logistics) through product coordination, process and supply chain design. There is a vast body of literature on product and operations design (Luzzini *et al*., 2015). However, this study examines business rather than product processes. At a strategic level, supply chains are being re-conceptualised to embed sustainability. Then the network structure is re-designed to adapt to facilitate a new configuration of processes, relationships and links. Subsequently, business processes are re-engineered, as part of this design process.

Even though there is a consensus that sustainability needs to be integrated, this is challenging and complex. Indicative of this is the limited research in re-conceptualising

sustainability in supply chain design (21% or articles analysed – Table VII.3). Arnette et al. (2014) explain how businesses are lacking a 'design for' approach based on a sustainability taxonomy. Possible causes for this is the lack of awareness, burden of costs or time constraints (Vachon, 2007; Zhu *et al*., 2011; Mitra & Datta, 2014), the ambiguity and breadth of interpretations of sustainability (Ahi & Searcy, 2013), or the increased complexity sustainability brings to complex network linkages (Vachon & Klassen, 2006). However, Buyukozkan and Berkol (2011) explain how there is a changing perspective of sustainability in that it creates long-term shareholder value while sustaining resources critical to the future of the company. Furthermore, even though it is still novel, re-conceptualising sustainability in supply chain design is critical. To do so necessitates an understanding of sustainability principles that determine orientation, investment and resource fitness, and priorities that determine the strategic aims and objectives, and performance measures, as these, provide the design requirements.

There is growing pressure for organisations to re-design supply chains to embed sustainability (Vachon & Klassen, 2006). As discussed, this is not without its difficulties: however, it is critical for competitive advantage (Buyukozkan & Berkol, 2011). The network structure is an important aspect of SSCM as the configuration of relationships and formation of links is necessary to facilitate business processes implementation (Winter & Knemeyer, 2013). An aspect of network design, stressed by Winter and Knemeyer (2013) is flexibility and adaptability and they recommend the following design indicators: network configuration, systems design and network optimisation. Another consideration is full TBL integration, rather than purely economic gains which are short-sighted and imbalanced (Arnette *et al*., 2014). A unique aspect of effective sustainable supply chain design is the consideration of multiple sustainability objectives and stakeholder requirements alongside organisational goals (Handfield *et al.,* 1997; Seuring & Müller, 2008b; Azevedo *et al*., 2011).

Re-engineering processes was a common theme in the literature (58% of articles analysed). Business process re-engineering (BPR) focuses on the analysis and radical change of activities across the supply chain. Vachon and Klassen's (2006) explain how process modification is intrinsically linked to strategy, collaboration and integration, and thus performance and bilateral benefits. Formentini and Taticchi (2016) explain how re-thinking business conduct, and the design of governance mechanisms, is necessary to determine the approach to sustainability and supply chain design. They also emphasise the necessity

of strategic orientation and the efficient links between capabilities to do so. It is here that Beske et al.'s (2014) work may be situated in relation to this study as it considers dynamic capabilities in relation to SSCM practices; specifically, the processes by which to achieve reconfiguration of resources into DCs for competitive advantage. SSCM and performance are being improved by designing supply chain and BPR to incorporate enhanced collaborative processes (Hernandez *et al*., 2014). Metta and Badurdeen (2013) explain that it is critical for companies to have an in-depth understanding of process and system capabilities when designing or planning: otherwise, there are efficiency and performance impacts. This offers another critical juncture for the focal company to integrate, clearly and holistically, sustainability and ethical goals to be disseminated across the network when implementing the design (Yu *et al*., 2014).

Designing processes is a core component of supply chain strategy as these act as a blueprint across the following levels: (Level 1) work and information flows through the value chain, product, services and processes; (Level 2) managing fixed and mobile assets and contracts through asset and infrastructure dependencies; (Level 3) trading relationships through organisations and interorganisational networks; and (Level 4) the environment which takes into consideration the contextual external conditions which impact upon all systems and which must be considered in strategy (Peck, 2005).

Integration **-** Though the term seems to be used interchangeably with collaboration throughout the literature, for this study it is considered a structural process as opposed to the relational-type process of collaboration. Therefore, it can be defined as the structural coordination of intra- and interorganisational processes. Its sub-processes include technological, logistical, channel coordination and standards (Vachon & Klassen, 2006; van der Vorst *et al*., 2009; Yu *et al*., 2014). Integration, as a key process, is a coordination mechanism linking strategy, design, governance and performance.

Integration concerns embedding sustainability across the supply chain structurally. 71% of articles reviewed stressed the importance of this process, particularly from the aspect of the TBL (Table VII.4). Though growing in conceptualisation and theory development, there is still need for further research into the integration process, particularly the 'how' question. For example, Frohlich and Westbrook (2001) proposed that the *arc of integration*, defined by the *degree* and *depth,* can increase organisational performance and sustainable competitive advantage, yet, problematically, there is a limited understanding of the holistic

integration of the TBL across the supply chain. An organisation that fully integrates the TBL will strengthen its long-term viability and outperform others with less integrated strategies (Carter & Rogers, 2008; Seuring & Müller, 2008b). Citing Banerjee (2001), Chan et al. (2012) explain how internal and external organisational orientation will determine this level of integration. For example, Zhu et al. (2006; 2007; 2012b) explain how leading, pro-active companies have integrated environmental dimensions into their strategies and mission, whereas reactive companies will have limited integrated strategies and practices. Vachon and Klassen (2006) explain that effective integration requires the knowledge and skills exchange and an alignment (reduction in goal discrepancy) of capabilities and priorities through both the product and process.

Another aspect of integration is process alignment and implementation internally and externally (Zhu et al., 2012b), and directly (Vachon & Klassen, 2006) and indirectly (Kim, 2009) to enhance performance. In the literature reviewed, more emphasis was placed on external (35 articles analysed) rather than internal (24 articles analysed) integration. Two types of direct integration were put forward by Vachon and Klassen (2006): logistical and technological. Kim (2009) argued for an indirect approach using arms-length integration or market exchange integration. The extent to which either of these types is integrated can be determined by the focal company's capacity, competency and capability to collaborate with and monitor its partners. The indirect approach may be more effective as it has allowed for greater flexibility. As direct SCMI increases, in effect monitoring decreases and collaboration increases. This leads away from conflict to cooperative, strategic networks (Kim & Narasimhan, 2002).

Collaboration **-** A growing body of literature exists on the importance of integrating sustainability criteria into the supply chain for competitive and collaborative advantages while improving sustainability performance (95% of articles analysed – Table VII.5). This key process by which partners cooperate focuses on embedding relational processes in SSCM (Vachon & Klassen, 2006; Morali & Searcy, 2013; Beske *et al.,* 2014; Govindan *et al.,* 2014b). It builds collaborative advantage across the network. It is characterised by time and resources (Chen & Paulraj, 2004; Wiengarten & Longoni, 2015) and considered boundary-spanning (Vachon & Klassen, 2006). These constructs generate a phased-approach, which Gunasekaran et al. (2015) refer to as the Green Collaboration Research Framework (adapted from Spekman, 1998). The 'collaboration' process model develops from

traditional relational transactions, through cooperation, towards greater coordination and ultimately into collaboration. Benefits include efficiency, effectiveness, performance and strategic advantage. Strategy brings in a temporal dynamic as it looks to the long-term management of business relationships and sustained collaborative advantage. In developing an understanding of SSCM strategy, and corroborating the Green Collaboration Research Framework, Wiengarten and Longoni's findings conclude that companies should consider a phased approach to strategic collaboration by initially adopting a "*coordinative outward-strategy and then build on it to adopt collaborative strategies*" (2015:148).

Expanding the collaborative process focuses on developing capacity and capabilities. The sub-processes that enable this process include goal alignment, process coordination, enhanced communication and information sharing, and joint development (Andersen & Skjoett-Larsen, 2009; Beske & Seuring, 2014; Gunasekaran *et al*., 2014). Internal sub-processes include cross-functional collaboration using mechanisms such as training, incentives and rewards (Wu & Pagell, 2011). External collaboration with customers considers cooperating on eco-design, packaging, cleaner production, least energy consumption for logistics/transportation and reducing environmental impact (Vachon & Klassen, 2008; Bhattacharya *et al.,* 2014). For example, the activities upstream with suppliers include strategic sourcing, supply market analysis, contracting and evaluation (Kannan *et al*., 2013; Luzzini *et al.,* 2015) indicative of 'transaction' in the earlier phases of the collaborative process model. Also, cooperation in redesign, providing design specification and technology innovations and performance (van der Vorst *et al*., 2009; Yu *et al*., 2014). This leads to more committed relationship utilising sub-processes such as cross-functional teams and supplier development. The teams share ideas, learning, knowledge, expertise and innovation. Supplier development focuses on methods for collecting supplier information, externally communicating minimum standards to all suppliers, information sharing, strengthening solutions, common goal orientation, motivation and multi-stakeholder initiatives (van Hoof & Thiell, 2014; Luzzini *et al.,* 2015). This leads to an interface with goal setting and performance evaluation indicators as inter-organisational collaboration by the focal firm downstream with customers and upstream with suppliers at strategic and operations levels requires monitoring for effective management (Vachon & Klassen, 2008; Flynn *et al.,* 2010).

Stakeholder management **-** Identified in the SSCM 'features' search string as a key process.

One of the core principles of SSCM is increased collaboration with stakeholders. Thus, the management of stakeholders, including the pressures and incentives they present, increases sustainability. This is classified differently to collaboration, as collaboration implies partners, commercial and non-commercial, working together for a shared outcome or goal.

Kleindorfer, Singhal & Van Wassenhove's (2005) review of the first 50 issues of sustainable operations management literature found that the subject area requires a broader consideration of internal and external stakeholders. To do so requires a structuring and management of business processes that take greater account of stakeholder value, especially "*to become agile, adaptive, and aligned in balancing the people and the planet with profits*" (2005:490). This meant a change in values beyond traditional trade-offs to cope with stakeholder issues. Pagell and Wu expand on these trade-offs and demonstrate how changing priorities presents challenges in this "*dynamic, complex and uncertain setting*" (2011:577). They explain, for example, that not all stakeholder needs are equitable. This affects the temporal dimension of decision-making, producing long-term considerations and decision-making processes to manage stakeholders' competing priorities.

Vachon and Klassen (2006) and Seuring & Müller (2008b) expanded the literature by exploring different stakeholder groups and their influence on corporate environmental strategy. Vachon and Klassen (2006) consider the scrutiny of stakeholder groups including governmental agencies, neighbours, workers and non-profits groups who have concerns over corporate strategies and practices. In response to this public scrutiny, manufacturers have developed environmental management systems, principles, prevention technologies, and product stewardship. Part of the GSCM strategy has been to become more externally orientated due to the influence of these stakeholder groups. This has become more pertinent in recent years with increased traceability and accountability (Sarkis, 2012). Seuring & Müller (2008b) elaborate on this public scrutiny and the need for companies to manage their reputation. They cite the following criteria as stakeholder pressures: "*legal demands/regulation, response to stakeholders, competitive advantage, customer demands, reputation loss, and environmental and social pressure groups*" (2008b:1703). In traditional SCM, pressures are usually passed onto suppliers: however, in SSCM companies have to take greater account for the whole supply chain, with increased boundaries and

flows (Sarkis, 2012), than pure economic reasons due to these stakeholder pressures (Seuring & Müller, 2008b). Furthermore, Zhu and Sarkis (2007) find that these coercive pressures lead to SSCM innovation and performance. Therefore, it becomes an imperative to manage stakeholders and respond to their concerns. Seuring and Gold (2013) explore the governance process and the implementation of standards and codes to effectively integrate and manage stakeholders, which is crucial for driving performance.

As a result of this strategic reorientation to stretch the concept of SCM to consider the whole supply chain and stakeholders along it, Matos and Hall (2007) considered the increased complexity of defining, coordinating and interacting with a wider range of stakeholders, making the distinction between primary and secondary stakeholders. For the purpose of this research project, the distinction is made between partners as any stakeholders. Using Freeman's definition of organisational stakeholders as "*any group or individual who can affect, or is affected by, the achievement of the organization's mission."* (2010:52). In terms of this research project it excludes any stakeholder who forms a collaborative partnership. By this definition stakeholders include, but are not limited to, competitors, academic institutions, NGOs, neighbours, activists, religious organisations and media, who are influenced by but not engaged in a sustainable supply chain partnership with the organisation or whose influence and public scrutiny needs to be managed. More recent work, such as Kolk and Pinkse (2007) extends this conceptualisation to include the natural environment as a stakeholder as it is affected by corporate activity. These interdependencies, based on "*varying degrees of legitimacy, urgency and power*" (2007:1088) mean that stakeholder management needs to be dynamic, adaptive and flexible, must be adopted organisation-wide and constantly monitored. Like Pagell and Wu (2011), they state that this is because stakeholders do not have the same "*rights, claims or interests as primary stakeholders"*, their concerns may be ambiguous or difficult to resolve, and they may be hard to identify in early stages (Kolk & Pinkse, 2007:1091). Therefore, stakeholder analysis identifies potential stakeholders and their concerns and then evaluates their influence on the organisation.

As the concept of SSCM matured, by 2014 Beske and Seuring (2014) had identified stakeholder management as one of the key practices. As a requirement for pro-activity and risk management, communicating with pressure groups is an important SSCM practice. As such, stakeholder management becomes part of SSCM learning and development,

reflecting an organisational culture and structure, and by investing in such a process, the overall TBL performance improves. Furthermore, Kirchoff, Koch and Nichols (2011) recommend greater integration, i.e. cooperation and interdependence, of business functions to manage stakeholder perceptions, such as marketing and deliberate communication. Therefore, monitoring and evaluating stakeholder integration becomes a sustainable performance measure. By 2014, there was a consensus among Ahi and Searcy (2013) and Beske and Seuring (2014) that stakeholder management is explicit in and exclusive to SSCM considering sustainability issues mean more stakeholders are involved in development.

On review of the literature, the sub-processes include stakeholder identification and analysis, identifying a potential change in organisational values and trade-offs, strategic reorientation and integration, responding to stakeholder concerns, and information sharing.

Performance monitoring and evaluation - This is a key component as it provides important information about the business case for integrating sustainability and improving efficiency, effectiveness and innovation while meeting strategic goals. Performance monitoring and evaluation complete the strategic SSCM process framework, as it provides the information to reappraise and adapt goals as an organisation and supply chain's understanding of sustainability evolves. Thus, this process model becomes cyclical in implementation and continuous improvement. It directly relates to each of the previous processes. Its measures are determined by the governance and strategic planning processes, its framework for the design process, and is the process by which the performance of collaboration and integration is assessed.

Monitoring is a performative assessment including activities and mechanisms (Vachon & Klassen, 2006; Tachizawa *et al*., 2015) and self-assessment tools (Seuring & Müller, 2008b; Bai & Sarkis, 2014) that comply with governance protocols and carried out either internally or by an independent third party (Beske et al., 2014). Examples include standards/codes of conduct, certification and the monitoring systems for compliance (Zhu *et al.,* 2008a; Pagell & Wu, 2009; Wolf, 2014) and accountability mechanisms such as life cycle assessment (LCA), key performance indicators, and operations performance indicators (Morali & Searcy, 2013; Beske *et al*., 2014). The main sub-processes include standards/codes of conduct, certification and the monitoring systems for compliance (Zhu

et al., 2008a; Pagell & Wu, 2009; Wolf, 2014). Other sub-process developing performance indicators include operations criteria – quality, delivery, flexibility and cost to meet sustainability goals (Zhu *et al.,* 2012b; Govindan *et al.,* 2013; Yu *et al.,* 2014). Structurally, environmental management systems which implement environmental management programmes, practices and monitoring systems have proved a popular mechanism, particularly the ISO 14001 framework (Curkovic & Sroufe, 2011). Across the performance literature reviewed, certification and the ISO 14001 were standard sustainability mechanisms (76% of articles analysed – Table VII.6).

Performance evaluation mainly relies on reporting through annual company reports or external reporting guidelines. 92% of the world's largest 250 companies report 2,555 different matrices, 73% (of the 92%) use Global Reporting Initiative (GRI) standards. The GRI provides 15 voluntary indicators with the remaining 93% (of the 2,555 metrics) used three times or fewer (Ahi & Searcy, 2015). Other leading voluntary certification bodies include ISO 14001, Fairtrade, Forestry Alliance, UTZ and Carbon Trust among others. Since the first sustainability reports were issued over twenty-five years ago, of the 'Top 10' food and beverage companies identified by Oxfam as having the largest revenues globally, seven have assessed their supply chain policies and practices along either Global Reporting Initiative (GRI) or non-GRI guidelines. Indicative of this phenomenon in the research was respondents accounting for the increase and importance of transparency and traceability. In 21 of the 34 participants, they stated it is on the rise and a necessity in increased collaboration.

2.3.3. Summary

The purpose of the SLR component of the literature review was to identify business processes in SSCM. Conclusive evidence in the SLR indicates that these are governance, strategic planning, design, integration, collaboration, and performance monitoring & evaluation (Figure 2.5). These are considered standard sustainable business processes as they are required for members to build and manage sustainable relationships, as recommended by Lambert (2008). He recommends this is necessary to address issues of ambiguity and confusion, particularly where terms are used interchangeably, as has been amply evidenced in this study, i.e. collaboration and integration, 'sustainability', GSCM and SSCM, and process, practice, procedure, routine, task and activity. This is to be expected

given the breadth of interests and research disciplines in the field. However, an in-depth review of the literature reveals how dominant communities of practice – this time academic - shape understanding and determine the focus. For example, the opus of work on GSCM practices by Zhu, Sarkis et al[5]. However, SSCM is a growth field, bringing with it a more holistic and integrated understanding of managing economic, environmental and social dimensions across the supply chain. The time is right to create a model of key business processes in SSCM, as there is now a substantial body of research in this area to enable its creation, as evidenced by the excess of 4,700 articles identified, 201 reviewed and 78 analysed.

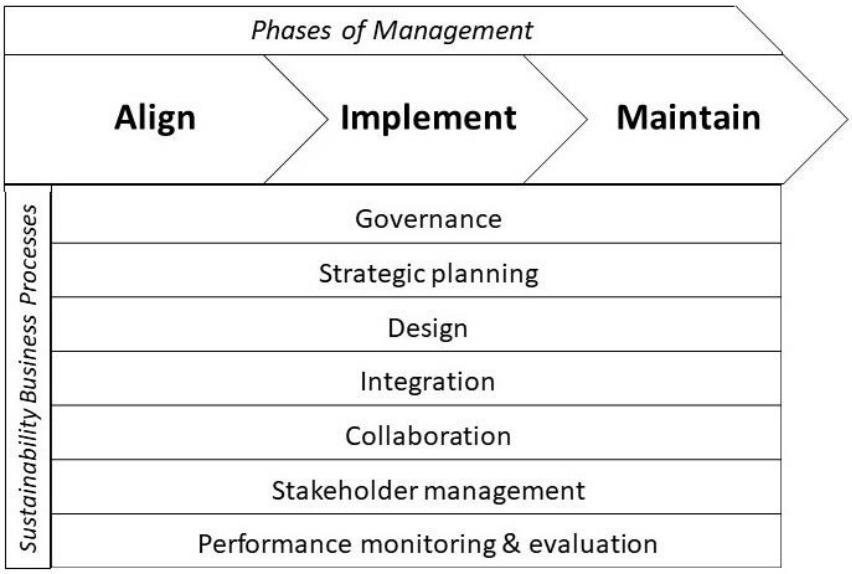


Figure 2.5: SSCM Key Business Processes Model

2.4. Research Synthesis

The purpose of the literature review was to map the existing fields of SCM and sustainability. The issues arising in these fields were discussed, data gathered, and gaps in the literature identified leading to research questions defining the focus and direction of the study (Blaikie, 2009). A range of themes and theoretical concepts presented themselves that can help academics and practitioners understand how to manage sustainable supply

[5] Sarkis, 2003; Zhu & Cote, 2004; Zhu & Sarkis, 2004; Zhu et al., 2005; Zhu & Sarkis, 2006; Zhu et al., 2007; Zhu & Sarkis, 2007; Zhu et al., 2008a; Zhu et al., 2008b; Sarkis et al., 2010; Sarkis et al., 2011; Zhu et al., 2011a; Zhu et al., 2011b; Sarkis, 2012; Zhu et al., 2012a; Zhu et al., 2012a; Zhu et al., 2012b; Zhu et al., 2013; Zhu & Geng, 2013; Zhu et al., 2017

chains. From these fragments, themes on principles, processes and practices were developed to create a connected view in understanding the phenomenon. In this section, theories on sustainability orientation and social network theory are used to help structure these themes into a research strategy. These elements are used as sensitising concepts to integrated into empirical research for the purpose of creating generalisations from this exploratory research (Blaikie, 2009).

2.4.1. Thematic Elements

Thematic elements revealed *in synthesis* provided major lines of empirical enquiry. The SCM Framework was used as a schema to examine how sustainability is integrated into SCM (Figure 2.3). From this, a particular set of themes emerged, i.e. principles, processes and practices. These are as a result of the need for a new paradigm for SSCM based on certain tenets.

Tenets in SSCM

In response to *Research Question 1.1.*, it is contended that by integrating sustainability into SCM, a new set of tenets emerge that fundamentally alter the SCM paradigm, therefore, requiring a new paradigm in SSCM. In conceptualising sustainability, various approaches and practices have developed depending on the principles that serve as a basis for actions. By integrating sustainability into SCM, several issues have revealed themselves. To be sustainable all three dimensions need to be fully integrated. However, tensions have arisen as companies develop approaches in consolidating these dimensions revealing diverse, and often incommensurate, values. These are evident when fully integrating the dimensions within the principles of the existing economic paradigm, as illustrated in the TBL model. Therefore, new business models are being developed with new sets of values. These values include variations in sustainability principles, a reconceptualization of the role of business in society, developing responsible, sustainable business models, a greater sense of responsibility towards and consideration of stakeholders' requirements, and a systemic, holistic network view. This phenomenon is resulting in new principles, processes and practices in SSCM that requires further exploration as it has not been studied in this way before.

Thematic Concepts Explored in the SSCM Framework

The literature highlighted how, within SSCM, either a new set of business principles, processes and practices are required to be sustainable, or else greater emphasis is placed on certain existing elements, as discussed in Section 2.2.5. However, to do so requires an in-depth understanding of sustainability, particularly the principles that determine the orientation towards sustainability and the degree to which sustainability is integrated.

The characteristics of a company's sustainability principles will determine to what extent the network is reconceptualised in the context of stakeholder collaboration. Furthermore, they will determine how the company configures its network structure, its position and density. Principles determine to what extent and the ways in which a company considers stakeholders' requirements. Regards *Research Questions 1.1*, this infers a relationship between the organisation and its network that is characterised by sustainability principles and the extent of the interrelationships and their interdependencies as a result of these. However, it is clear that further exploration of this topic is necessary as network level research is limited within SCM (Burgess *et al.,* 2006) and SSCM (Miemczyk *et al.,* 2012; Winter & Knemeyer, 2013).

There is also an interrelationship between the sustainability principles, network density, the management component and types of practices. Principles determine the types of links depending on how orientated the company is towards sustainability (Figure 2.4). Therefore, it is suggested that there are styles of practices depending on the extent to which sustainability principles are conceptualised within SSCM. However, given the confusion over *practice* and *process* terms, alongside the need to clarify these as there is a relationship between principles and practices, further research is required to understand the characteristics of practices and in what way principles shape these. This will enable *Research Questions 1.1* and *1.3* to be answered.

The final element of the SCM Framework to explore how sustainability is managed is business processes. As with practices, it was evident that the existing literature needed clarification. A process behaves a certain way when applied in practice. Therefore, there is a relationship between sustainability principles, processes and practices (*Research Question 1.3).* How sustainability is conceptualised is leading to a new set of tenets and a paradigm shift from SCM into SSCM. This has resulted in a new range of processes in the field emerging (*Research Question* 1.2). However, due to the nascent nature of the SSCM

field and the lack of clarity on process and practice terms, a new process model was required. In answer to *Research Questions 1.2.* a SSCM Key Business Processes Model (Figure 2.6) was created from the literature which can be examined empirically and contribute to answering *Research Question 1.3.* by means of a conceptual framework.

This discourse has revealed the ways in which sustainability principles relate to SSCM. This presents a conceptualisation of the phenomenon of which very little is known as this topic has never been investigated before in the context of SSCM.

2.4.2. Theoretical Concepts

Theory was used at this early stage to generate meanings and identify relationships between the concepts from the data gathered in the literature. The tenets and framework within which the phenomenon was conceptualised revealed particular theoretical perspectives to understand these relationships. These included aspects of *orientation theory* (OT) towards sustainability including organisational, stakeholders, and network, and *stakeholder network theory* (SNT) which provides constructs for examining stakeholder interrelationships. These theoretical perspectives were used to explore the relationships between the thematic concepts. As Blaikie explains, "*theories provide explanations of regularities in social life at a level that is directly relevant to research*" (2009:129). Understanding of the phenomenon describes why sustainable supply chains are managed in any particular way based on varying principles of sustainability (Blaikie, 2009:77). It is the intention of this research to explore and present an explanation of the causal relationships between thematic elements and develop these into a conceptual framework. Therefore, at this early stage of the research process, theoretical concepts are explored as causal explanations for the relationships between principles, processes and practices.

<u>Organisational Orientation Theory</u>

A theoretical consideration is organisational orientation towards sustainability. At the heart of this discourse is how organisational orientation is a causal mechanism that shapes practice (Wu & Pagell, 2011; Gold *et al*., 2013; Beske *et al.,* 2014). Organisational orientation is a company's predisposition towards goals and activities as a result of its structure, culture and strategy. In this instance, it refers to an orientation towards sustainability. What Banerjee (2001) refers to as *internal environmental orientation*. Gold et al. (2013) explain that orientation towards sustainability manifests in the behaviours,

norms and mores both at an individual and at a corporate level. The level of integration determines the sustainability of the organisation and its holistic management across supply chains (Seuring & Müller, 2008a; Ahi & Searcy, 2013; Gold *et al.,* 2013). This in turn influences SSCO (Kleindorfer *et al*., 2005; Vachon & Klassen, 2006; Seuring & Müller, 2008a; Pagell & Wu, 2009; Pullman & Dillard, 2010; Wu & Pagell, 2011; Sarkis, 2012; Ahi & Searcy, 2013, 2015; Gold *et al.,* 2013; Beske & Seuring, 2014). This is a dynamic process which captures the mindset and strategic values of a company in its movement towards sustainability across the supply chain (Pagell & Wu, 2009; Wu & Pagell, 2011).

Stakeholder Orientation

Another aspect of OT is the consideration of stakeholders, i.e. *stakeholder orientation*. Developed from stakeholder theory (Freeman, 2010), it "*denotes the stakeholders salient to management, and the objectives that managers aim to achieve through engaging with stakeholders*" (Crilly, 2011:696). Another core concept is stakeholder orientation's relationship with practice. Ferrell, Gonzalez-Patron, Hult and Maignan define stakeholder orientation as "*the organizational culture and behaviours that induce organizational members to be continuously aware of and proactively act on a variety of stakeholder issues*" (2010:93).

Within this field, there are two bidirectional discourses: creating (normative approach) and capturing (intrinsic approach) stakeholder value. Berman, Wicks, Kotha and Jones (1999) discuss the concept of managing *key stakeholder relationships* as indicative of more holistic thinking in how to capture competitive advantage due to the interdependence between strategy and stakeholder relationships. This instrumental approach explains how the organisation is affected by stakeholders in terms of performance, profitability and competitive advantage. In keeping with Berman et al.'s (1999) *normative approach,* Crilly (2010) explains stakeholder-centric orientation from the perspective of creating value for a broader range of stakeholders based on the principles of business ethics and corporate social responsibility. This is based on the ethical consideration that an organisation's decisions affect stakeholders and provide a foundation of legitimacy for corporate strategy. From this perspective, Jones (1995) argued capturing instrumental benefits such as problem-solving, efficiency, performance, required specific practices such as trust and cooperation. These need to be intrinsic rather than strategic for mutually beneficial outcomes (Berman *et al.,* 1999). Therefore, bidirectional approaches provide an

explanation for the diversity of stakeholder orientation and serve as a descriptive theory for stakeholder engagement (Crilly, 2011:712). This is reflected in how an organisation perceives stakeholders and therefore behaves towards them.

Network Orientation

A focus on network theory emerged due to the premise that "*managing interorganisational relationships is central to success"* (Shook *et al.,* 2009:4) given the need for a systemic, holistic view, a wider view of stakeholders being taken into consideration and increased interrelationships resulting in interdependencies. Rowley (1997) explains that stakeholder influences, and how a company responds to these, requires an understanding of the interconnected networks of relationships. The network view accommodates an understanding of multiple, interdependent stakeholders influences and how a company manages these. Understanding how to manage a supply chain sustainably requires this wider view and how direct and indirect stakeholders are embedded (Miemczyk *et al.,* 2012). Stakeholders become more embedded through the degree to which they become interconnected through integrative and collaborative processes and the links that facilitate these. Diverse stakeholders collaborate on issues of concern even though their requirements do not necessarily align (Ferrell *et al*., 2010). Therefore, concurrent with Ferrell et al.'s (2010) conclusions, stakeholder orientation requires a more expansive perspective than SCO allows in SSCM.

Banerjee describes external environmental orientation as the "*managers' perceptions of external stakeholders and the need to respond to stakeholder interests*." (2001:496). Furthermore, the concept of stakeholder orientation extends beyond culture and behaviours to include structure and strategic goals and activities in the context of network. Therefore, the network orientation is defined as the network culture, structure and strategy to influence goals and activities. Vurro et al. (2009) explain that with greater levels of centrality and density and the integration of sustainability the trade-offs between unilateral and multilateral benefits are becoming evident with increasing alignment. Therefore, in network structure, it is possible to observe the forces that determine how sustainability is conceptualised and prioritised.

Stakeholder Network Theory

By grounding the study theoretically using SNT, the issue of a company's power to influence the supply chain is explored. This is based on the understanding of what 'sustainability' is and how its dimensions are embedded in the supply chain network varies depending on who is involved in making decisions and how they make them. Stakeholder theory facilitates an understanding of stakeholder influence on SSCM practices through externalities, such as stakeholder pressure on the organisation or manipulating allocation of critical resources (Rowley, 1997). While social network theory considers the outcomes of relationships predicated by the position of stakeholders' in the network through density and control. Rowley surmises that a stakeholder network provides a gestalt-view of the sum of stakeholders influencing SSCO and management.

This theoretical framework allows a company to consider factors that manage risk and lead to sustainable competitive advantage, such as types of partners, capabilities and processes (Sarkis, 2003). It also helps identify the areas where strategic decision-making is required, the control hierarchy of decision makers, and "*what patterns might exist among the various relationships*" or where heterogeneity exists in sustainability processes and integration mechanisms (Sarkis, 2003:405). Cox (1999) argues that it is critical to consider power structures and the 'hierarchy of structural dominance'. This allows for the exploration of the roles of a complex array of actors at a network level, an examination of the power throughout the network. This suggests network structure and the dominants of power, i.e. centrality and density, are worth investigating.

There is a limited discourse on SSCM and SNT (Vurro *et al.,* 2009), however, independently the two streams, stakeholder (de Brito *et al.,* 2008; Matos & Hall, 2007; Joseph Sarkis *et al.,* 2010; Adhitya *et al.,* 2011; Kannan *et al*., 2013; Kusi-Sarpong *et al.*, 2015; Schoggl *et al.,* 2016) and network theory (Roome, 2001; Sarkis *et al.,* 2011; Zhu & Liu, 2010) gain attention. In fact, Sarkis et al.'s (2011) theoretical review of GSCM, did not recognise SNT, instead listing the two theories separately. While in the SCM discipline a similar issue occurs in studies by Burgess et al. (2006) and Shook et al. (2009). It appears that this theory is only beginning to gain traction across the academic community. In their editorial for a special edition on power in SCM, Reimann and Ketchen recognises conceptually that "*power as a means of value appropriation and coordination in supply*

chains" is a key concept (2017:7). They recommend further research into power asymmetry and how it affects the welfare of different stakeholders.

2.4.3. Syntheses of Themes and Theories

Values and beliefs have been a theme in SSCM, particularly in relation to interdependence and how individualist organisational orientation versus collective network action compete in SSCO and SSCM. This discourse has been brought to the fore by theoretical discussions on organisational orientation and stakeholder network theory. The literature suggests that a relationship exists between these theoretical perspectives. This relationship can be described as interdependent relational forces - the individual and the collective - that capture the facets of a network of relationships. Both are pathways to behaviour, suggesting types of practices. These practices are determined by a spectrum of sustainability principles.

Sustainability Spectrum

Varying principles in sustainability were explored in this literature review. These appear to range along a spectrum of sustainability orientations. This spectrum captures the level of sustainability from low to high based on perceived importance (Banerjee, S.B. 2001), principles (Johnston et al. 2007) and sustainable development (Neilsen, 2010) from weak to strong sustainability. Banerjee (2001) captures this zeitgeist in his model of internal and external environmental orientation and the perceived importance of constituent stakeholders to determine strategic action. Johnston et al. (2007) explain that weak principles lead to a loose interpretation and application sustainable development to achieve sustainability. This 'looseness' is linked to the traditional neo-classical economic paradigm. Neilsen (2010) supports this argument, explaining that the rationale for weak towards strong sustainable development is based on a spectrum of economic orientation from neo-classical to ecological economics.

High sustainability orientation is referred to as *eco-centric* (Gladwin & Krause, 1995; Purser *et al*., 1995; Banerjee, S.B. 2001). To be explicit, this categorisation is not intended to limit the scope of eco-centrism to a purely ecological domain. This study does not believe it necessary to make the differentiation between *eco-centrism* and *sustain-centrism* articulated by Gladwin & Krause (1995). While this discourse has proved valuable in the consideration of anthropocentrism in organisational theory development (Gladwin *et al.,*

1995; Purser *et al.,* 1995), it is a historical discourse from which our understanding has matured. It is intended in this study that *eco-centrism* captures the zeitgeist of sustainability which seeks to balance holistically the three dimensions of sustainability in which the planet is a stakeholder – a concept supported by Gladwin & Krause. This phenomenon is also seen in the convergence of GSCM and SSCM. Whereas building on the concept of *ego-centrism* by Terpend and Ashenbaum (2012) and the concept of neo-classical economic behaviour favouring individual benefits over the collective (Neilsen, 2010), this study exemplifies low sustainability orientation as *ego-centric.*

Types of Practices

An overarching critique of SSCM is that research is limited concerning the management of sustainable principles and the coordination of multiple stakeholders given their varying preferences and perceptions (Vachon & Klassen, 2006). The numerous studies on SSCM practices shaped by organisational orientation and network structure suggest that there is fertile ground to explore the interplay between the two causal mechanisms. Shrivastava's (1995) 'eco-centric' paradigm presents a framework by which to explore both these dimensions in the context of eco-centric management in industrial ecosystems, as both the company and its network orientate themselves towards a higher level of eco-centric goals and activities. In keeping with Shrivastava (1995), the paradigm for SSCM supports an eco-centric conception of interorganisational relations and processes. "O*rganizations are viewed as situated within bio-regionally sustainable industrial ecosystems, relating to each other through a logic of ecological interdependence.*" (Shrivastava, 1995:118).

A range of behaviours have been illustrated by the themes and theoretical concepts explored through the literature. Within the list of structural and relational links in SSCM (Table 2.2), a manager has a range of activities it can select from. It is clear that sustainability into the SCM model has led to a change of focus on existing SCM activities while also introducing new links. There is ample evidence in the literature of ranges of behaviours, captured in a variety of SCM behaviours and activities (Table 2.15). What is not understood from the literature is whether a type of practice exists that is a collection of these activities based on their varying levels of use and whether these levels of application can be determined by how the sustainability dimension is conceptualised.

Table 2.15: Evidence from the Literature of Types of Behaviours & Activities

Perspective	***Activity/ Behaviour***	***Model***	***Levels (High to Low)***	***Author(s)***
Organisation	Sustainability Orientation	Sustainability Spectrum	Eco- to ego-centric	Gladwin & Krause (1995) Purser et al. (1995) Banerjee, S.B. (2001).
	Level of TBL Integration	TBL	High to low	Seuring & Müller (2008b) Ahi & Searcy (2013) Gold et al. (2013).
	Business Model	Stages of Value Creation	• STAGE 1: Do old things in new ways. • STAGE 2: Do new things in new ways. • STAGE 3: Transform core business. • STAGE 4: New business model creation and differentiation.	Lubin & Esty (2010)
Network	Company response to stakeholder pressures	A Structural Classification of Stakeholder Influences	• Compromiser • Commander • Subordinate • Solitarian	Rowley (1997)
	Sustainable supply chain governance	Network Determinants of Sustainable SCG Models	• Transactional • Dictatorial • Acquiescent • Participative	Vurro et al. (2009)
	Level of Embeddedness	Degree of embeddedness	• High relational/High structural links • High relational/ Low structural • Low relational/ High structural links • Low relational/ Low structural links	Granovetter (1985) Jones et al. (1997) Rowley (1997) Spekman et al. (1998) Vurro et al. (2009)
Supply Chain	Level of Integration	Arc of Integration	• Outward-facing • Supplier-facing/ Customer-facing • Customer-facing/ Periphery-facing • Periphery-facing/ Inward-facing	Frohlich & Westbrook (2001) Wiengarten & Longoni (2015)
	Phase of Collaboration	1. Collaborative Framework 2. Green Collaboration Research Framework	• Collaborative • Coordinated • Cooperative • Transactional	1. Spekman et al. (1998) 2. Gunasekaran et al. (2015)

Conceptual Framework

In order to understand how to manage a supply chain sustainably four sets of concepts and their relationships were examined – SSCM framework, thematic elements, theoretical

mechanisms and units of analysis (Figure 2.6). Each core concept has a set of interrelated features that help explain how to manage supply chains sustainably. It is within the context of the SSCM Framework and its elements of network structure, business processes, management component and sustainability are used to examine how to manage supply chains sustainably. This has resulted in thematic elements, theoretical mechanisms and units of analysis being identified that explain how the framework is used in practice.

This thesis argues that there is a relationship between values and action. In terms of how sustainability is conceptualised in SCM, extensive research has examined dimensions but there has been limited research that has studied the effect of principles. As such, the literature review has shown that how sustainability is conceptualised results in types of behaviours (Table 2.15). These practices can be understood within the context of the management component and the types of relational and structural links used. Due to a paradigm shift in SCM due to the integration of sustainability into the framework, a new set of links are emerging that favour more collaborative and systemic practices that address sustainability issues (Table 2.2).

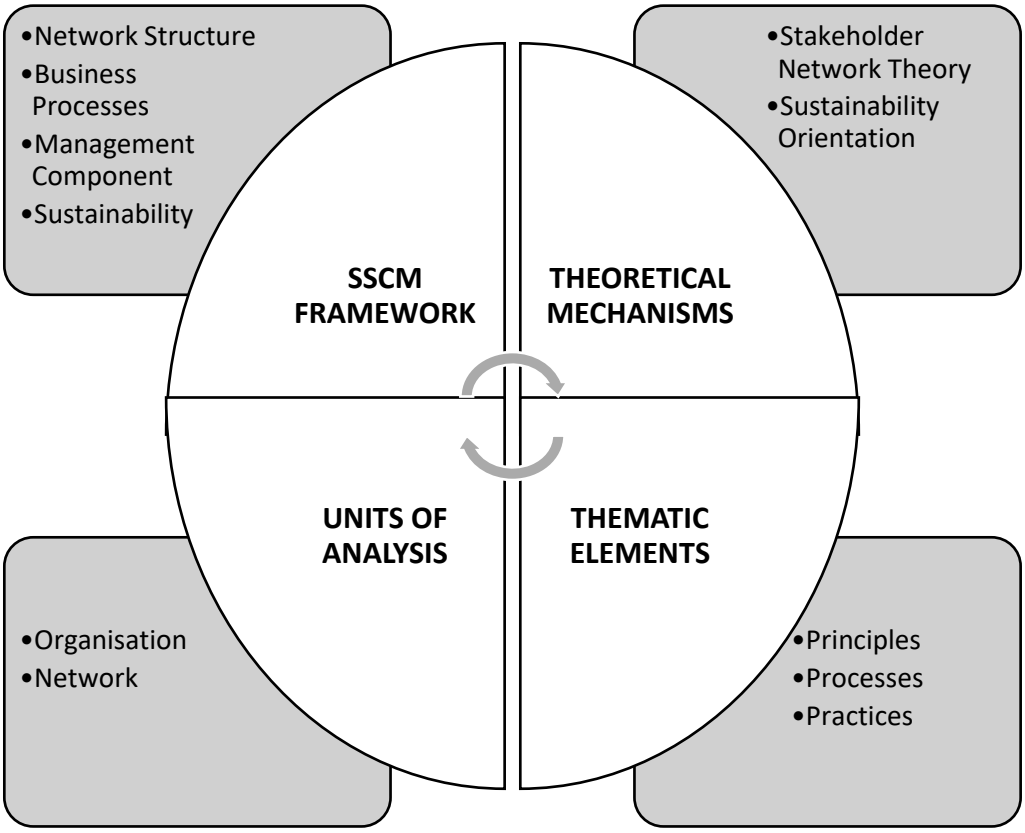


Figure 2.6: Core Concepts and their Interrelated Features in SSCM

Sustainability is also affecting the network structure as the tenets of SSCM requires collaborative action with multiple-stakeholders and a systemic and holistic network view. Furthermore, within the network structure there is a relationship between the organisation and the network that determines the sustainability orientation of the supply chain and how it is managed sustainably. In this context, how sustainability is conceptualised has an important significance because of several factors. Firstly, there are strategic benefits to integrating sustainability. Secondly, how sustainability is conceptualised is heterophilous and political in nature due to a variety of socio-economic value systems that articulate the relationship between people, planet and economics and the role of business in society. Thirdly, an organisation's position in the network and the density and types of links determines its ability to influence the orientation of the network. Therefore, there is a relationship between network and organisation in terms of supply chain orientation towards certain principles and practices. This has resulted in two units of analysis – network and organisation – to understand the determinant forces that influence principles and practices.

Two theoretical concepts were used to explain the causal mechanisms – sustainability orientation and SNT – based on concept of values and the power to actualise them (SNT) respectively[6]. Sustainability orientation as a causal mechanism explains the values along a spectrum of ego to eco-centric principles. Sustainability orientation is captured in the organisation and the network which results in variations in practices (Table 2.15). SNT as a causal mechanism explains power and influence of an organisation on the network and *vica versa* through the constructs of centrality and density. The literature review has demonstrated how these constructs are mechanisms of power to influence types of practices based on sustainability orientation (Table 2.15).

However, in order understand how principles determine practices, an object of study was required. This object draws on the final aspect of the SSCM framework – business processes. Business processes were identified as the object of study, i.e. to understand how business processes are managed in practice. In order to understand how the business processes are managed two mechanisms are used by managers that capture the extent to which sustainability is integrated in SCM described in the SSCM component model (Figure

[6] The concepts of value and power are political in nature and therefore considered in the methodology (Ch. 3) by sensitising the researcher to the political nature of the research (Research Objective 4 and Research Question 4), logic of inquiry (Section 3.3.1) and analytical method (Section 3.4.3).

2.4). Firstly, phases of management explain the progressively advanced stages through which the processes are managed including alignment, implementation and maintenance (Figure 2.5). Secondly, the management component describes the structural and physical links to facilitate flow and process integration (Figure 2.2). Managers have a range of links from the pre-existing SCM framework to the addition of behaviours and practices optimal for sustainability (Table 2.2). Extensive research has demonstrated that there is no consensus as to what the key sustainability processes are. In response, a model of key processes in SSCM was defined and described for empirical examination (Figure 2.5).

Therefore, based on these core concepts, the following conceptual framework explains how to manage supply chains sustainably (Figure 2.7):

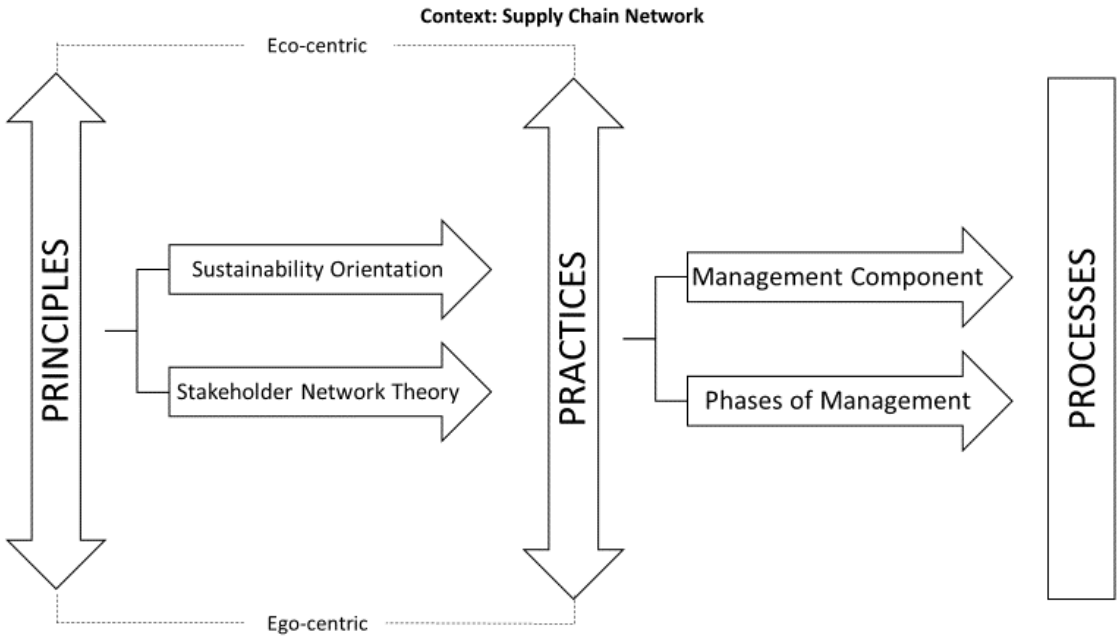


Figure 2.7: Conceptual Framework of How to Manage Supply Chains Sustainably

2.4.4. Summary of Literature Review

In seeking to understand how to manage sustainable supply chains, the literature provided thematic and theoretical data to explore key concepts and the relationships between these. As a result of the study, a SSCM Framework was examined as a schema to explore key themes and theories as sensitising concepts (Figure 2.6). What the research revealed was that several gaps and limitations exist our knowledge regards how sustainability principles affect SSCM practices. In conclusion, a distinction was made between processes and practices. This was critical as the literature suggests that to be sustainable requires a

new set of processes and practices. There is also a relationship between principles and practices, as the former's values shape the latter's behaviour. Added to this are the concepts of value and power which suggests different styles of practices depending on sustainability principles resulting in a conceptual framework of how to manage supply chains sustainably (Figure 2.7). Therefore, the SSCM framework, the themes of principles, processes and practices, the theoretical perspectives of sustainability orientation and SNT, and the units of analysis of organisation and network have been developed as the schema to explore, understand and explain how to manage a sustainable supply chain.

CHAPTER 3 RESEARCH METHODOLOGY

3.1. Introduction

This chapter describes the methodology of the study in four parts: research agenda, research philosophy, research design and methodological evaluation. Firstly, the purpose, aim, objectives, and questions of the research agenda are summarised. The research philosophy describes the philosophical assumptions that underpin the research. From these, the research design is qualified including the case study approach, analysis and theoretical development. Finally, a methodological evaluation discusses reliability, validity, biases and limitations, with concluding comments.

3.2. Research Agenda

3.2.1. Purpose

The purpose of this study is to explain how key business processes in SSCM are managed in practice. However, there is no body of research that examines key business processes unique to SSCM. Knowing how to manage these in practice, requires an understanding of why and how different stakeholders behave. This requires a network view of multiple stakeholders, but limited research exists on whole supply chain networks and, those that do, primarily study triadic relationships. Moreover, limited research has focused on the management of diverse sustainability principles, and the coordination of multiple stakeholders engaged in these. Understanding how these processes are managed in practice, the variation in sustainability principles needed to be understood.

This indicated a research agenda for the development of a conceptual framework to manage SSCM processes in practice. This was developed from empirical data to ensure credibility, validity and transferability of the research findings (Easterby-Smith *et al.*, 2012).

3.2.2. The Aim & Objectives

The research aim is to *understand how SSCM processes are managed in practice*[7].

1. *To explore how the concepts of sustainability and SCM merge.*
2. *To describe key business processes in SSCM.*
3. *To explain how SSCM processes are managed in practice given the variation in sustainability principles.*
4. *To draw implications of SSCM for academics, practitioners and policymakers.*

3.2.3. Research Questions

Against this background, the primary research question was framed: *How do varying sustainability principles among stakeholders in the supply chain network affect the management of processes in practice?*

To develop a conceptual framework based on the research proposition, the following secondary research questions were asked:

1.1. To what extent, and in what ways, are sustainability principles related to SSCM?

1.2. What are the key sustainability business processes?

1.3. What are the mechanisms in the relationships between principles, processes and practices?

1.4. What are the ethical implications of this for stakeholders across the supply chain?

3.3. Research Philosophy

Social scientists are encouraged to show epistemological allegiance or, as Crotty advises, "*to be consistently objectivist or consistently constructionist (or subjectivist)*" (1998:15). An array of ontological assumptions springs forth when one considers the nature of social reality from the interplay between object and subject, and the mode of scientific enquiry, as a continuum between relativism and realism (Burrell & Morgan, 1985; Crotty, 1998). Here a fundamental separation happens as philosophers' have epistemologically split on

[7] The taxonomy for basic research terms is based on Blaikie's definitions (2009:69)

what is being studied between positivism and constructivism (Russell, 1967; Burrell & Morgan, 1985).

This study is based on the relativist ontological perspective of the researcher that embodies what Burrell and Morgan (1985) describe as a nominalist ontology of reality and Blaikie (2009) describes as an idealist view of reality. To derive knowledge of this socially constructed and interpreted reality, a constructionist epistemology seeks to find patterns and relationships among principles, processes and practices using the data gathered from different perspectives (Blaikie, 2009).

The purpose of this study was to understand how multiple interpretations of sustainability influences how meaning is given to the values, norms and behaviours of actors within a supply chain network. The research did not judge the sustainability of any stakeholder based on a normative conceptualisation of sustainability based on the researcher's subjective world-view. Rather the study sought to understand how the stakeholders created meaning and the causal mechanisms used to construct their social reality. Thick descriptions were used to capture the rich detail and complexity of layers of understanding that structure the social network (Geertz, 1973). Therefore, three levels of analysis (process, social network analysis and critical discourse analysis) were required to capture this complexity consistent with the theoretical rationales (Section 2.4.2) and logic of inquiry (Section 3.3.1). The interpretative accounts of stakeholders in the applied context of a chocolate supply chain network who draw a system boundary based on sustainability partnerships where gathered using a case study method. These accounts varied depending on the social context (i.e. their position within the network structure and power to influence meaning). An inductivist approach to theoretical development was taken in this ideographic study to build a rich narrative that explains the complexities of the phenomenon (Eisenhardt, 1989; Chalmers, 2013).

However, a purely constructivism paradigm does not sufficiently account for the reality of the objective component of research project, i.e. a model of business processes. The processes were used as the object of study to understand how they are managed in practice given the variation in sustainability principles of stakeholders in the supply chain network. Therefore, there is a nomothetic element to the research that describes key business processes that were identified systematically (Section 2.3), examined empirically and then analysed using thematic analysis (Section 5.4).

This philosophical and methodological approach is common to critical realist studies that seek to infer through deductive (Research Objective 2 – empirical investigation of key business processes) and inductive (theory development through Research Objectives, 1 – 4) (McEvoy & Richards, 2006). The study also seeks to understand causal explanations and the quest for emancipation from hegemony of sustainability principles that was generated as a result of the discourse on power. This resulted in a critical management studies logic of inquiry and the use of SNA and CDA to analyse power across the two units of analysis – the organisation and the network.

Therefore, this study has a distinct constructionist approach, assuming an interpretivist research paradigm through which the meaning of social phenomenon has to be understood (Easton, 2010). It is complemented with a relativist dimension on critical realism. There is also a critical line of inquiry to the theoretical perspective that is captured in the political discourse on power and interdependency (Crotty,1998). While it does not dominate the design logic, it is a logic of inquiry that seeks to be emancipatory through the critical discourse (Fairclough, 2005) and social network (Wasserman & Faust, 1994; Rowley, 1997 & 2017) analytical methods. This type of knowledge is reflected in the aim of the study, the type of research questions, and methodology.

The methodology chosen for this research is inductive qualitative for building theory (Blaikie, 2009; Chalmers, 2013). This approach is taken in order to identify patterns and relationships between the thematic concepts to build theory. Theoretical propositions, a conceptual framework and taxonomy practices based on varying sustainability principles are the constructs used to build theory coherently (Miles & Huberman, 1994). This approach is relevant to both exploratory (Research Objective 1) and explanatory (Research Objective 3) studies (Blaikie, 2009; Yin, 2014). The exploratory component develops theoretical propositions, while the explanatory aspect develops the causal argument.

3.3.1. Logic of Analytical Inquiry

Easterby-Smith, Jackson and Thorpe (2012) describe a range of management perspectives that act as constructs for logics of enquiry. In analysing causal explanations and the quest for emancipation, there were two logics of inquiry (process theory and critical management studies) selected as most suitable. These dimensions both presented schematic characterisation consistent with induction including inferences, rules and limitations that

enabled the research to be considered scientific (Blaikie, 2000). For example, both considers importance of power and politics in legitimising knowledge.

Process Theory

The process view of management considers how motivation occurs and processes develop. Process theory (PT) analysis considers multiple entities such as multiple communities in a network and their relationships that form practice (Van de Ven and Poole, 1995). While several types of development theory exist, of particular interest to this study was dialectical theory of development that considers pluralistic forces or generating mechanisms of change that compete for domination and control (Van de Ven and Poole, 1995). Thus, inherent tensions of organisational orientation and network determinants as mechanisms that can be leveraged for power are viewed as important.

Critical Management Studies

Critical management studies (CMS) critiques the narrative of dominant paradigms (Alvesson *et al*., 2009). As a logic of enquiry, it too has been dominantly guided by critical realism (Reed, 2009). A key adherent of this form of logic was Foucault (1980), and his discourses on sources of authority in power/knowledge, bringing into critical focus institutions of governance and economic control. For example, it considers the bias of social constructs such as the crisis of validity, rights of representation and the place of the political (Gergen & Gergen, 2003).

An important consideration in understanding the phenomenon was to establish the deep processes underlying particular social actions. Habermas (1991) suggests that this can be explained by the colonisation of the lifeworld, where communicative reason is displaced by instrumental rationality, as predicted by legitimate and referent power (French and Raven, 1959), power asymmetry (Maloni & Benton, 2000) and power as an isomorphic mechanism (DiMaggio & Powell, 1983). In other words, how the social world of organisational business processes and practices are motivated by means to an end and are constructed and maintained through communication actions (Fairclough, 1992) and institutions (Foucault, 1980). In contrast, moral rationality, and by extension ethics (the moral authority of consensus), can also be self-interested suggesting a moral authority that is not impartial (Moreno, 1988). A series of actions, particular to a community, is a system that results in differentiation, specialisation, restrictions and incentives. The choices that

govern these actions are made as a means to an end, i.e. *universal rationality.* Therefore, more powerful communities, such as focal companies, their collective association, and their system logics drive normative practices, i.e. *corporate colonisation* (Banerjee, 2007). These biases infer a need to understand the narrative of language and its capacity to manipulate the world.

Simply put, if the purpose of the research was purely to 'explain' processes then the logic of process theory would be sufficient. However, this study goes further in its ethical and political concerns with the nature of the emancipatory research and thus power and the rationality of normative practices.

3.4. Research Design

The purpose of the research design was to select methods that systematically address the aim and objectives of the research and contribute to knowledge. This led to the formulation of the research problem-solving process that defined this complex and dynamic phenomenon and warranted its further investigation and resolution (Van de Ven, 2007). The research design logically connected methods to the study's purpose and questions. These included rationales for a SLR, case study, analysis and theoretical development.

3.4.1. Literature Review

A narrative review identified trends, themes, thought-leaders and keywords. This helped scope the literature, capture quality literature and position the study (Tranfield *et al.,* 2015). The systematic literature review (SLR) prescribed by Tranfield, Denyer and Smart (2003) (Appendix IX) provided a nomothetic aspect to the research. A systematic protocol was used to capture and describe SSCM processes (Appendices V & VII). The data were synthesised under two frameworks: classification and content synthesis. The results contributed to its mapping and characterised the field in the content analysis. The content analysis provided a systematic view of relationships among processes, establishing patterns in what constitutes key processes in SSCM, and created a SSCM key process model. Finally, in the research synthesis, thematic and theoretical concepts were developed to create an understanding of how to manage sustainable supply chains. These elements were used as sensitising concepts to integrate into the empirical research (Blaikie, 2009).

3.4.2. Case Study

Having taken account of the purpose and aims of the research project, the intensive research problem lent itself to a qualitative study. A case study method was selected, as the research aim suggests a 'how' type question, in which there is little control over events and focus is on a contemporary complex phenomenon as described by Yin (2014). Eisenhardt (1989) and Stake (1995) argue that this methodology is appropriate, particularly as it gives rich insight into complex social phenomena. Hartley (2004) explains it is suitable for analysing context and processes that illuminate theoretical issues.

A single case study was selected as a judicious method that provided an in-depth study to reveal deep processes and instrumental insight into the phenomenon to develop theory (Stake, 1995). As the purpose of the study was to explain how sustainable supply chains are managed, an explanatory-type study was selected (Yin, 2014). A supply chain network bounded the study to explore the complexity of communities' and their relationships through the proximity of network determinants. It is also a critical case as it provided the method of gathering data to develop theoretical propositions, a conceptual framework and typologies of practice archetypes inductively. The study of a network engenders the examination of nodes. This is so that the relationship between a company and the gestalt of network stakeholders can be understood. Therefore, there are two embedded units of analysis: the network and the commercial company. This is what Yin (2014) refers to as an *embedded case study* design (Figure 3.1).

The case has nine nodes examined for cross-case analysis within the network. This approach, recommended by Yin (2014), was selected for maximum variation as the aim is to gain a rich understanding of how sustainability is perceived and negotiated among commercial partners in different settings across the supply chain network. Specifically, nodes were chosen as a theoretical sample displaying characteristics of maximum variation of organisational orientation (Pettigrew, 1992).

A strict design logic was not applied as this was an inductive study that required flexibility and reflection on sensitising concepts to establish theoretical generalisations (Blaikie, 2009). However, certain boundaries needed to be put in place for the manageability of this research project and the sequencing of case study activities, such as duration, scope and boundaries (Table 3.1). Appendix X explains the logic of linking the data to the research objectives. The criteria for interpreting findings were sensitising concepts

(Section 2.4.3) that developed into theoretical propositions, a conceptual framework and taxonomy (Section 5.5). The emergent approach allowed the method to be adjusted as research became more sensitive to the complexity of the problem and allowed for the research focus to be theoretically refined.

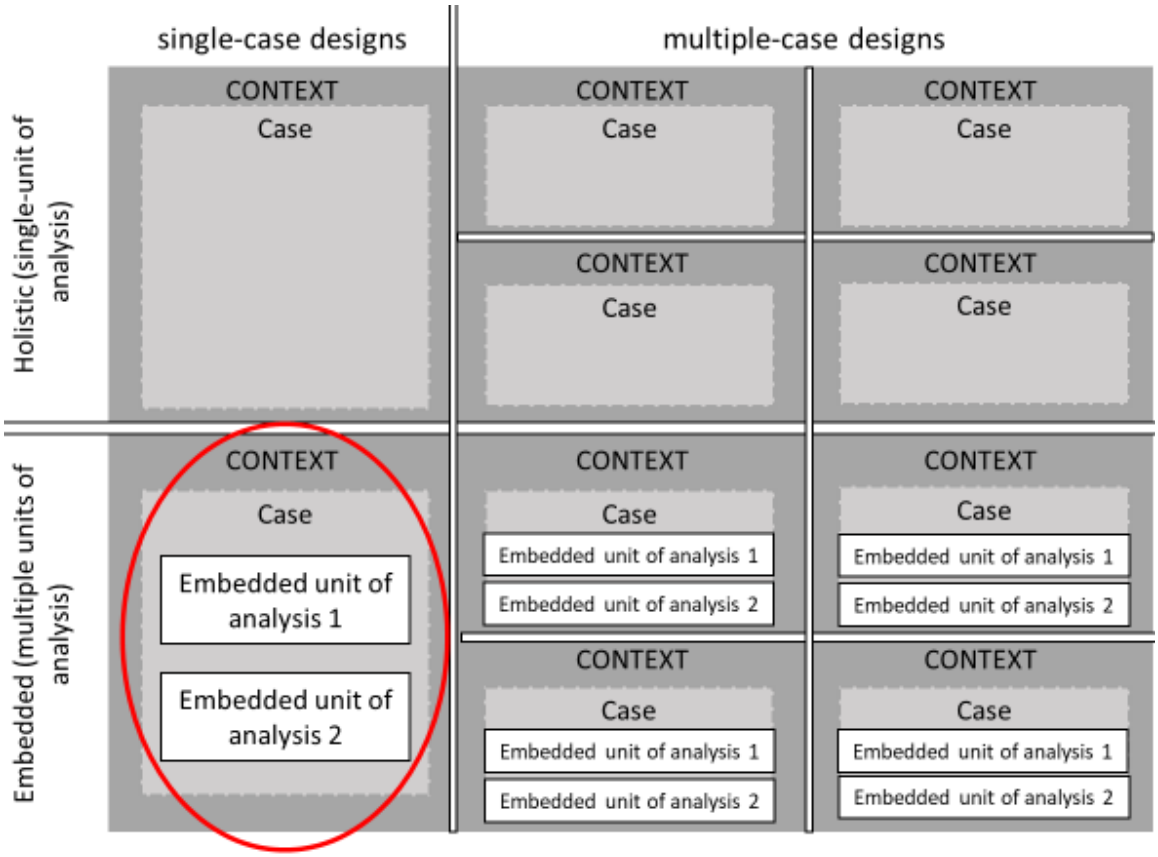


Figure 3.1: Yin's Basic Types of Designs for Case Studies (2014:50)

Table 3.1: Sequencing of Activities in Case Study Approach

Activity	***Timeframe***
1. Background study	Jul 15 – Dec 15
2. Key witness interviews	Dec-15 – Jan-16
3. Analyse documentation	Jan-16
4. Pilot study to improve quality of research project and address practicalities	Jan-16 – Jun-16
5. Plot network & identify subcase studies: establish contact and access to participants and documents	Apr-16 – Mar-17
6. Analyse	Jan-16 – Apr-17
7. Map supply chain stakeholders and partners	Oct-16
8. Participant interviews	Jul-16 – Apr-17
9. Direct observation	Jun-16 – Mar-17
10. Analyse documentation	Jun-16 – Apr-17
11. Analyse data	Apr-17 – Sept-17
12. Member checking using case study reports	Sept-17 – Oct-17

Research Setting: F&B sector

The F&B sector was the context that bound the research, as per the arguments of relevancy and insight set forth in Sections 2.2.7 and 4.2. Within this, the sustainable cocoa supply chain network was selected as the critical case as it:

- Provided sufficient access to data
- Is considered an exemplar of SSCM (given its activities and certification standards)
- Met the conditions to explore the theoretical concepts of the study
- Provided the context to explore both units of analysis

Sampling Strategy

Patton (2002) recommends a purposive sampling strategy when the purpose of the critical case study is to generate explanatory frameworks. This approach is used for the identification and selection of nodes as information-rich cases that illuminated the theoretical propositions of the case study (Yin, 2014). Maximum variation sampling gave scope to conduct cross-case analysis within the nodes. Matched comparisons for purposeful sampling were based on selection criteria. However, Yin (2014) warns purposive sampling may be misleading in its generalisability. Rather than avoid it as Yin suggests, Blaikie (2009) recommends clarification of sampling concepts for accuracy, precision and bias.

The population parameter was network partners, with informants selected as a representative of the types of organisations. Individuals were purposely selected due to their experience or expertise with the phenomenon (Creswell, 2009). For the nodes, the population was commercial companies and the sample was representative types of organisational organisation. A purposive sampling strategy was used in mapping the network beyond a company's partners, to the complex array of upstream and 2nd tier commercial partners, and non-commercial partners. This approach is recommended by Blaikie (2009) when a variety of contexts is used to identify organisations who represent a unit of analysis.

Saturation determined the size of sample complemented by an emergent approach which built on the sample during fieldwork. This was concluded when enough samples were selected that captured the range of theoretical constructs in the units of analysis (Starks & Brown Trinidad, 2007). It determined when to complete sampling at the point of information redundancy from the emerging thematic analysis.

Units of Sample

The participants were classified by the units of analysis:

- *Type 1. Sustainable Supply Chain Network* - The supply chain network partners (commercial and non-commercial) were identified as in-case informants. The levels of analysis were strategic and macro. Three different sets of participants were selected: supply chain companies, trade associations and non-profit organisations. It was intended to achieve a full spectrum of collaborative partners and their relative positions. External informants included experts in the field who offered an expert, critical view (Yin, 2014).
- *Type 2. Commercial company* - In-case participants were identified for their organisational role in working to embed sustainability across the supply chain within the company being studied. The levels of analysis are strategic and micro. They were selected at a management level or above to examine the strategic orientation of the organisation and how it determines the sustainability agenda.

Overall, participants were selected at each level of analysis as targets for triangulation including:

- *Strategic Level*: Board of Directors, Corporate Strategist, Supply Chain Manager, Corporate Social Responsibility/Sustainability Manager/Director.
- *Macro Level*: Supply chain partners (supplier/customer) account managers; third-party consultants such as business associations, non-government organisations, and certifiers.
- *Micro Level*: Internal business managers such as purchasing, sales and marketing; Officers implementing supply chain and sustainability practices such as cross-functional design or performance teams.

Ninety-nine persons across forty-three organisations were approached to take part in the study. Overall, 26 organisations and 36 people participated (Table 3.2). Respondents comprised of people from around the world, including China, America and South America but primarily the UK and Europe. Depending on the unit of analysis, participants were identified as either internal or external informants. For a full list of participants see Appendix XIII. For further information on sample rationale, see Appendix XI.

Table 3.2: List of Organisation Types that Participated in Case Study

Type of participant	***Type of organisation***	***Approached***	***Participated***	***Interviewees***	***Type 1***	***Type 2***
Commercial participant	Retailer*	6	3	4	Internal	Internal
	Brand manufacturer	7	4	7	Internal	Internal
	Trader	3	0	0	-	-
	Farmer/farming association	4	1	1	Internal	Internal
	Packaging	1	1	1	Internal	Internal
	3PL	1	0	0	-	-
Non-commercial participant	Business association	6	6	10	Internal	External
	NGO	9	6	7	Internal	External
	Certifier	3	3	3	Internal	External
External informant	Business Association	1	1	1	External	External
	NGO	1	1	1	External	External
	Retailer*	1	1	1	External	External
Total		*43**	*26**	*36*	*33 internal 3 external*	*13 internal 24 external*

* One retailer provided internal and external participants. The external informant worked on marine supply chains and provided expert insights to contextual issues in F&B supply chains. Therefore, the total of organisations approached and participated are 'less 1' then the tally

Pilot Study

The purpose of the pilot case study was to sensitise the researcher to the issues and challenges of the phenomenon and to test and refine the research design (Yin, 2014). A small-scale study helped refine the data collection plans for the larger study. The selection of the pilot case was due to convenience, access and geographic proximity (Yin, 2014). An introduction was provided by an industry contact to the brand manufacturer, Mondeléz International, who met the sample criteria. Four participants were interviewed across the three levels of analysis to provide insights into and refine the research design and field procedures. The original questions were broad questions on the phenomenon (Appendix XV). Findings sensitised research design to practice-based issues, refined what questions to ask and how to ask them, leading to a protocol with a focused and structured line of inquiry (Appendix XVI).

Data Collection

Multiple data sources of data were gathered to develop a thick description of the phenomenon and to corroborate, augment and triangulate meanings (Table 3.3). The types

selected were from Yin's 'Six Sources of Evidence' (2014:105), including primary data from interviews and observations; and secondary data from documents and archival records. An empirical data collection plan was designed as a research protocol, providing descriptions of data type, source quantities, the rationale for collecting data and associated research objective (Appendix XII).

Table 3.3: Summary of Data Collection Methods

Type of Source	***Data collection source***	***Quantity***
Primary	Interview	33
	- Internal participant	30
	- External informant	3
Primary	Observation	6
	- Individual	5
	- Social episode	1
Secondary	Documentation	265
	- Internal organisational documentation	148
	- External documentation	117

Primary data was gathered directly by the researcher to answer the research questions. To guarantee appropriate, rich data, it is recommended that there is advanced planning (Stake, 1995; Yin, 2014). This was created in the protocol and data collection plan (Appendices XI & XII respectively). To ensure rigour, Yin's 'Four principles of data collection' were adhered to (2014:118-119). A semi-structured interview guide followed the case study design logic (Appendix XI). This was so that the in-depth line of inquiry could get close to the subject's explanations, particularly when this could be substantiated by observing them in their natural setting (Blaikie, 2009; Yin, 2014). The questions formed an interview guide to address the research objectives (Table 3.4). In total, 35 subjects participated in 33 interviews between November 2015 and April 2017 (Appendix XIV).

Table 3.4: Rationale of Semi-Structured Interview Questions

Interview questions	***Research objective***	***Rationale***
1. What is your understanding of sustainability in terms of the supply chain management?	Objective 1: To explore how the concepts of sustainability and SCM merge.	Establish an understanding of term 'sustainable' to explore how sustainability principles and priorities affect SCM.
2. What are the key processes and practices in sustainable supply chain management	Objective 2: To describe key business processes in SSCM.	To explain how SSCM processes are managed in practice.
3. What are the key issues and challenges in integrating sustainability criteria across the supply chain?	Objective 3: To explain how SSCM processes are managed in practice given	Explore conceptual framework of sustainability processes through the lens of network theory and power relationships terms of strategy and

	varying sustainability principles.	decision making and how this impacts on supply chain practice

The 2nd source of primary data was direct observations. Two types were used including the natural social settings of individuals in organisations and social episodes (Blaikie, 2009). Direct observations of individuals in their social settings helped give meaning to the organisational structure and culture in which their community's practices occur. Five individual observations presented diverse organisational orientation contexts within which practice was given meaning. The social episode provided a critical and data-rich source to observe partners in practice, particularly traders who declined to be interviewed.

Secondary empirical data included organisational administrative documentation, external documentation and archival evidence (Yin, 2014). Administrative documents included websites, sustainability project and tasks sheets, progress reports, action plans, guidelines, programme information reports, announcements and developmental resources such as training literature. These illustrated principles, processes and practices, and how they are communicated by participants. They were sourced through internet searchers in preparation for field work or as directed to by participants. Interestingly, only external, publicly available information from commercial participants was available as they declined to provide internal documentation. The explanation was that this is sensitive competitive information. However, this and the available information allowed inferences to be made of what was being said and not said. Another consideration was how policy regards legal compliance, standards and accreditation, translate into processes and practices. Therefore, documentation such as internal annual and sustainability reports, and external sustainable accreditation reports were reviewed.

Archival records included 'public use files' and survey data produced by others. FAME and Euromonitor data assisted in creating a comparative profile of each study by analysing each company in relation to its peers, including size, industry, location, corporate structure and industry reports. This also provided information on directors, shareholders, and heads of department plus other senior contacts to help familiarise the researcher with the organisation before interviews. Survey data produced by others about the case participants was used. To ensure validity, care was taken to review the conditions, purpose and audience for which this research was produced (Yin, 2014).

3.4.3. Analysis

As recommended by Yin (2012), the analytical technique was selected to address the research question (S). This technique included an inductive logic of analytical inquiry guided by the research philosophy and appropriate methods to explore the phenomenon and find the most likely explanation.

> *"Critical social scientists argue that explanations of social practices must be critical precisely in order to be explanatory, and that the necessity of critique gives social science a potentially emancipatory character."* (Sayer, 200:158)

Sayer's statement refers to two analytical components: (1) the conceptual framework including a business process model and causal mechanisms, required of research questions 1 - 3; and (2) the implications of dominant organisations giving status to and normalising practices orientated to their sustainability agenda, to address research question 4. Epistemological assumptions were implicit in the types of questions asked to understand the phenomenon and analytical technique to appraise these.

Analytical Method

This project combined three interpretive analytical methods – thematic analysis, stakeholder network analysis, and critical discourse analysis, that examined narrative materials of real-life sense-making. These formed a line of inquiry and design logic that were systematic and compatible with the research purpose.

Thematic Analysis (TA) - defined as "*a method of identifying, analysing and reporting patterns (themes) within data*" (Braun and Clarke, 2006:79). This project followed the guidelines of Sobh and Perry (2006). A data reduction technique generated the coding for principles, processes and practices. Easton defines this as "*a metaprocess the outcome of which is the identification of mechanisms that explain what caused particular events to occur*." (2010:124). This was done through the identification of codes, clusters and themes through a series of levels of analysis including descriptive and illustrative (Miles & Huberman, 1994) that Neuman (2014) describes as axil and selective coding respectively. In the initial axil coding phase, codes were generated from the sensitising concepts identified in the literature to investigate the external reality using a literal replication logic to predict sustainability principles, key business processes and links in SSCM. Selective coding of themes established how meaning is given to practices using theoretical

replication logic to predict contrasts in theoretical concepts. The codes were reduced again to define and develop the structures and mechanisms in the emerging conceptual framework. Pattern matching of outcomes in causal relationship variables signalled the emergent theme (Miles & Huberman, 1994). This process was satisfied once saturation occurred (Neuman, 2014).

Social Network Analysis (SNA) - Defined as a focus on "*relationships among social entities and on the patterns and implications of these relationships*" (Wasserman & Faust, 1994:3). SNA considers the constructs and explanatory mechanisms of relationships and related structures within the supply chain network. The purpose is to explain the relational environment around the organisation, in addition to its internal attributes of organisational orientation to explain how they adapt to their environment. With respect to SCM, SNA provided insights into how patterns of relationships translate into sustainability orientation and management. Many scholars have written comprehensive guides on social network research. Of particular interest is the work Rowley (1997; 2017) who considers SNA in relation to stakeholder networks, Borgatti and Li (2009) who explain it from a supply chain context, and Hansen, Shneiderman and Smith (2010) and Smith, Shneiderman, Milic-Frayling et al. (2009) who explain its application in NodeXL analytical software.

SNA was used to describe the system of interrelated organisations, described as nodes, and their relationships, i.e. ties. To do so, invokes centrality and density as mechanisms that describe these relationships. The benefit of this type of visualisation is that entities can represent different levels of collectivity, such as organisations, associations, clusters, industries and sectors (Borgatti & Li, 2009). The ties among the nodes can be characterised into two categories: continuous and discrete. Ties captured in this study were discrete as they explained the management component (Figure 2.5) of interorganisational relationships and their structural and relational links. Rowley (2017) considers the benefits of characterising multiple discrete events to examine the interdependencies associated with multiple stakeholders, capturing the level of relational embeddedness. However, it was not within the resources of this study to examine every discrete event/interaction occurring over a period of time. Furthermore, Borgatti & Li (2009) argue that presuming the quantity of ties captures the quality or strength of a relationship is misleading, as two emails are not necessarily a proxy for strength of social relation. Rather, centrality and density are used to examine the nature and scope of relationships connecting nodes.

Power is a key concept in SNA. Extending Foucault's (1980) notion that knowledge is power, network analysis invokes the mechanism of transmission. Transmission captures the flow and content of interaction, such as information between actors who influence each other (Borgatti & Li, 2009). Therefore, the greater the number of ties then the greater the potential transmission of information. This level of power and influence is captured in centrality and density, by those in a central position with many ties. Centrality describes the position of an organisation relative to others as a ratio of the number of relationships. It explains who is in a central position of potential power and influence by examining the connectivity of nodes as distinct measures that include a variety of measures. Three measures were used to depict centrality (Freeman, 1979; Hansen *et al.,* 2010).

- 'Closeness' measures the average shortest distance between nodes, indicating a central position. The more central a node, the lower its distance to all other nodes. Therefore, the lower the score the shorter the distance. It indicates a more central position and therefore level of importance in the network to influence the entire network.
- 'Betweenness' captures the level of brokerage represented in how far apart organisations are by neighbour-to-neighbour hops through interconnected degrees. It describes how nodes link across different social groups by positioning themselves as a bridge between nodes. This is measured by measuring all the shortest paths, i.e. closeness, and then calculating how many times a node falls on one, therefore depicting it as a bridge between nodes. Therefore, the higher the score, the higher the nodes importance in acting as a bridge for information to pass.
- 'Eigenvector' ratio depicts influence scores for strategically connected actors. The criteria that specify the type of relationship are its nature, i.e. partnership or watchdog, and the degree of interaction, i.e. collaborative or concurrent. Collaboration indicates the centrality of the actor to control the flow of information, act as a gatekeeper and serve as a liaison between disparate network regions within a supply chain and concurrence does so at a sectoral level. This is circulated by determining the total number of connections a node has and the degree of connections. A basic descriptor for counting the number of connections is degree centrality. It describes quantitatively how many direct connections a node has and qualitatively character of that connection as the degree of interaction. For example,

an organisation will have a unique number of collaborations with network partners, characterised as its degree centrality. Therefore, relative scores are assigned to all nodes and a high score means that a node is connected to other strategically connected nodes who also have high scores.

Density describes the ratio of actual connections to potential connections. In this study, the structural and relational links are examined in detail to determine their level of embeddedness and focus. Another aspect of density is the clustering coefficient which measures the degree to which organisations tend to cluster together. This reveals complex patterns of connection that facilitate shared meanings associated with particular goals and interests (Hansen *et al*., 2010). By virtue of density increasing, communication becomes more efficient and normative behaviours are institutionalised (Meyer & Rowan, 1977).

Centrality and density, as proxies for power, are of interest in this study as they illustrate the mechanisms of network determinants used by organisations to influence and be influenced by other stakeholders. This is an important perspective because as Rowley explains,

> *"Both stakeholder and social network perspectives serve as antagonists to economic-based assumptions about behavioural motivations… Social network researchers fight against the economics-based theory that a firm is a nexus of dyadic contracts… Stakeholder research…award shareholders with preferential claims on the organisation's value creation process"* (2017:105).

Critical Discourse Analysis (CDA) - In line with Fairclough's appraisal of critical realism (2005), CDA was carried out to extract findings of an emancipatory nature, i.e. the power to influence norms and practices. Specifically, he argues for the analytical dualism of agency and materiality. Of particular interest is Lukes (1974; 2005) work on the three dimensions of power residing in the system to analyse the effectiveness of power in any given institution and/or interest group. This approach to understanding the behaviour in decision making is based on legitimate sources of an accepted underlying ideology and helps explain the mechanisms of policy formation. To understand how members of the network are positioning themselves to influence and institutionalise norms and practices based on their conceptualisation of sustainability. It also demonstrates how interest groups in any power structure compete for power (Lukes, 1974). Theoretically, Fairclough is consistent with Lukes materialised by the rationality of the actor/group through meaning (Clegg, 1989). This can be observed through the ritualised performance of meaning given to

practices/behaviours and the power to do so. These politicised ritualised knowledge practices are what Foucault (1980) refers to as the discourses by which social actors make sense of and produce their world.

The analysis is sensitive to the types of discourse that manifest in different settings as a result of the dominant narrative such as a politically conscious manager or as a result of an elite community's privileged access to key means of communication for example (Alvesson *et al*., 2009).

In method, Fairclough outlines a version of the CDA approach. Unique to this approach is the "*analysis of the relations between discourse and non-discoursal elements of the social [practice], in order to reach a better understanding of these complex relations (including how changes in discourse can cause changes in other elements)*" (2005:924). Fairclough (2004) summarises four broad research issues that CDA addresses as emergence, hegemony, recontextualization and operationalisation. The research of these issues materialises in three ways:

1. As genres (ways of acting) where 'action', is construed as an interpersonal and identification function,
2. Discourses (way of representing), where representation is considered 'ideational' of what is being represented by the actor/organisation,
3. Styles (ways of being) in social practice as 'identification' that represents a judgement of how sustainability principles are understood and prioritised and the commitments and undertakings to these (Fairclough, 2003).

Together, these elements reveal crucial dimensions of discourse analysis - action, context, power and ideology (Dijk, 1997). The 'order of discourse' is the way in which these elements combine and can differ among communities of practice. Understanding the system and the interplay between these provides insights into normative practices and conflicting alternatives. These discursive practices can be observed at three levels: micro, meso and macro. For this project, they were conceptualised as:

- Micro-level: the analysis of individuals and social episodes to understand meaning and real-life practices to explain how behaviours emerge. It revealed the reciprocation of meaning, shaped through discourse as action and political context.

- Meso-level: the analysis of organisational orientation and relational issues among partners to explain how practices are institutionalised. It reveals the actions, context, power and ideology of the organisation to shape meaning and the features of social interaction between partners.
- Macro-level: the analysis of focal companies and the supply chain network as dominant organisational and business paradigms to explain the wider political, and ethical implications. It sheds light on the 'ideological-discursive formations' associated with different communities and the dominant one, with its ideological norms and practices, within (Fairclough, 1985; Alvesson & Karreman, 2000).

Analytical Process

The analytical process was done in three phases with seven embedded levels of analysis:

1. TA: an independent analytical process that codes, categorises and analyses principles, processes and practices, and the causal mechanism that shape events within the data.
   1.1. Axil coding: manifest description of principles, processes and practices by categorically coding key characteristics.
   1.2. Selective coding: identified the latent content of more abstract themes of causal mechanisms.
2. SNA: method that maps and calculates a supply chain network of stakeholders and their relationships.
   2.1. Identify stakeholders and classify characteristic
   2.2. Analyse stakeholders by positions of influence
3. CDA: use of social research themes described how language is used to institutionalise a dominant business paradigm of principles and practices and the implications of these actions.
   3.1. Textual analysis: micro-level analysis examined the social effects of written or spoken language, cultural artefacts and visual representations.
   3.2. Discourse practice: meso-level analysis examined
   3.3. Social practice: macro-level analysis examined

3.4.4. Theoretical Development

The purpose of this ideographic study is to build a rich narrative that explains the complexities of the phenomenon. However, it is also to avoid the pitfalls of "*staggering volume of rich data… that lacks simplicity of overall perspective*" (Eisenhardt, 1989:547). Therefore, after data analysis, the last stage of design considered data display permits theoretical conclusions to be drawn. The section synthesises the work of Yin (2014) and Miles & Huberman (1994) to explain how theory was built by developing theoretical propositions, a conceptual framework and taxonomy of practice.

The study used a 'theory building structure' approach with each section in the Findings Chapter. It examined various facets of the conceptual framework to develop theory (Yin, 2014:189). To complement this, Miles & Huberman (1984) outline qualitative displays that explain the conceptual framework "*without destroying the meaning of the data through intensive coding*" (Eisenhardt, 1989:534).

An ideographic study was used to provide an understanding of the phenomenon. In this inductive approach, the nature of theory is theoretical generalisation (Chalmers, 2013; Yin, 2014). The resulting theory generalisation developed as explanations of relationships between concepts were revealed in the analysis. Three levels of theory were developed: (1) taxonomy of practices, (2) a conceptual framework and the development of propositions about the relationships between concepts brought together into a (3) theoretical scheme that explains the aim of the study (Blaikie, 2009).

Systematic combining utilises the case study as a unique means of developing theory as it allows for an integrated and iterative research process (Figure 3.2). A preliminary analytical framework evolves and expands through empirical data and theory to the concluding framework. This is referred to as matching and is the iterative process between framework, data sources and analysis that constitutes the theoretical framework. The direction and redirection of multiple data sources denote triangulation, but it also broadens the scope of data collection so that unidentified insights might reveal themselves through active data, such as participants suggesting additional resources, rather than the passive data collection planned by the researcher (Dubois & Gadde, 2002).

The conceptual framework looks at the causal explanation for the process model to behave in a certain way in practice given varying principles. Specifically, it describes the structure, mechanism, conditions and effect/event. These events were discovered

empirically through observation. This research qualifies objects as business processes and the process model as the structure. The causal mechanisms explain what powers and liabilities determine these to be managed in a certain way. SNT represents the necessary mechanisms. As Sayer explains, "*the same mechanism can produce different outcomes according to context*" (2000:15). In this instance, the context manifests contingent mechanisms, i.e. the predisposition of organisational orientation towards particular sustainability principles, illustrative of the "*dispositions which were sedimented at some earlier stage, often in different places*" (2000:16). These conditions manifest as a result of the variables between the necessary and contingent relations, i.e. the SSCO matrix. As a result, events occur under these conditions that can be observed through the taxonomy of conditions that classify these events – capturing the taxonomic level of theory.

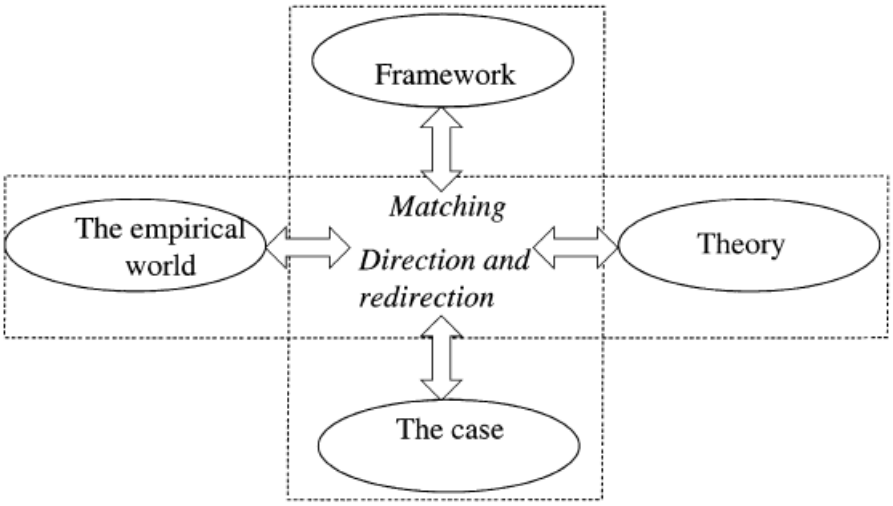


Figure 3.2: Systematic Combining Research Process

Source: Dubois & Gadde (2002:555)

3.5. Evaluation of the Methodological Process

To ensure the credibility of knowledge produced in this research project, this section opens its design to scrutiny. This is so that *"objective, valid and generalisable*" conclusions are made that contribute to social science (Crotty, 1998:13). It justifies the chosen methodology and methods by outlining the reliability and validity criteria. It clarifies the limitations and biases of the approach selected, particularly that of the researcher for reflexive purposes. Finally, it considers the ethical implications of the research.

3.5.1. Reliability and Validity

> *"An examination of the methods by which validity and reliability are established, reveals that they involve corroboration and replication."* (Blaikie, 2009:216)

Validity and reliability concern the principles and guidelines applied to the methods selected by which social scientists pursue 'truth' of knowledge under a philosophical paradigm. Validity concerns the criteria for judging the outcomes of the logic of inquiry and the application of methods in qualitative research (Denzin & Lincoln, 2011). Reliability assesses the procedures so that they may be replicable for future researchers, producing the same findings and conclusions, and limit errors and biases (Yin, 2014).

In keeping with the constructionist tradition, that all observations are theory-laden and that all scientists are inherently biased, the author supports Dubois and Araujo's position that "*methodological choices cannot be divorced from theoretical positions nor can theories be regarded as method-neutral*" (2007:171). Furthermore, Easton explains, "*since all philosophical positions rely on assumptions they can only be ultimately judged pragmatically, not in the limited sense used by pragmatists but in terms of our beliefs that they result in better explanations*." (2010:119). There are many criteria to ensure validity, reliability and reflexivity. In this instance, those pertinent to information-rich cases for in-depth study to build theory were evaluated. Therefore, Yin's four tests established the quality of the research (Appendix XVII). Triangulation provided interpretations that were contingent on multiple contexts "*to capture a single, external and complex reality… [and] to foster understanding of the reasons for the complexities of that reality*" (Sobh & Perry, 2006:1203). Replication justified the selection of the embedded multiple subcases so that differences and similarities could be observed within the units of analysis for patterns and relationships (Yin, 2014). Analytical methods facilitated the identification and interpretation of themes in order to understand where heterogeneity existed between cases through thematic convergence. A narrative write-up of the case study provided descriptive in-depth insight into the phenomenon, context and causal relationships. Finally, consistent with Yin (2014), Lincoln & Guba (1985) posit that trustworthiness is important to evaluating findings and can be illustrated through credibility (confidence in the 'truth' of the findings), transferability (applicability to other contexts), dependability (consistency & replication of findings) and confirmability. This will be discussed in Chapter 7: *Conclusion* – and the implications and limitations of the research to address Research Objective 4.

3.5.2. Limitations and Biases

> *"It is an ethical responsibility for us as case researchers to identify affiliations and ideological commitments that might influence our interpretations"* (Stake, 2006:87)

Each paradigm has its own concepts of 'truth' and, therefore, limitations and biases to knowledge. To establish these is to understand the boundaries of knowledge, the biases that constrain it and what it does not say or do. These manifest in the methodology, methods choices of the researcher, however, it is not possible to be fully aware of all predispositions (Stake, 2006). In qualitative social science research, the aim is 'to be relatively free of these biases' by recognising where they occur in the work so that the knowledge is 'clear and suitably meaningful' (Stake, 2006). Furthermore, to appraise the limitations of each methodological choice against rival explanations in best addressing the research problem provides a critical evaluation of research design decisions (Yin, 2014; Blaikie, 2009). Blaikie (2009) recommends an appraisal of practical and theoretical strengths and weaknesses to help readers better critically appraise the work.

Regards this research project, a major strength is its understanding of the phenomenon in light of several distinct features. Firstly, the study is ideographic utilising a qualitative method in a traditionally positivist domain where quantitative empirical studies and mathematical modelling are the norms. The research critiques dominant political and economic paradigms such as globalisation and the Western MNC business model and how they interpret sustainability. Specifically, how power, ideology and hegemony are leveraged to institutionalise and give status to sustainability principles and practices that complement competitive business agendas. How this study contributes to research and management education from a CMS perspective is considered. To do so, an in-depth study was required to understand the 'complexities and contradictions of real life' that contained a substantive narrative emphasising the 'rich ambiguity of politics', rather than a traditional summarising and generalising, and be of use to practitioners (Flyvbjerg, 2006:21&22).

A major limitation of this study is that it does not approach the phenomenon from the *Discourse* of the dominant positivist and non-political paradigm of the research community or practitioners. It would have been possible to limit this study to research questions 1 – 3, by providing a practical tool for MNCs to manage sustainable supply chains, but this would have ignored the emancipatory nature of critical realism reflected in research question 4,

the CMS logic of enquiry and CDA analytical method. However, due to the double hermeneutic choices of the researcher, the research design was extended to consider the ethical implications of this and place a key aspect of this research project outside of the dominant Discourse of both academia and practice.

A strength of the case study approach is that it considers plausible rival explanations and not just descriptive or exploratory functions (Yin, 2014:7&238). Furthermore, it disputes that general rather than case knowledge is more valuable because an in-depth empirical understanding is or more value to practitioners than the abstract reasoning (Eisenhardt, 1989; Flyvbjerg, 2006). A weakness is that it does not address more quantifiable frequencies or indices, thus limiting its impact across academic publications. A single case study with embedded units of analysis was selected as it best fitted an examination and explanation of the conceptual model. Alternatively, multiple case studies in different contexts (illustrative of different industries and sectors) with multiple embedded units of analysis would have been suitable and would have appeased the positivist theorists of case study research in the field such as Meredith (1998).

The global sustainable cocoa supply chain was selected because it had prior history in SSCM, public scrutiny of sustainability principles, and provided a context that was within the resources of the researcher to collect data from. This opens up the discourse on case identities. Generally, anonymity is considered undesirable as it eliminates important contextual and historical information (Yin, 2014). However, due to the relatively small size of the network, actors are generally well known, therefore it was not realistic to constrain the anonymity of the embedded subcases as they are easily identifiable. Due to informants' terms and avoid attribution, the identity of citations had to be protected (Yin, 2014).

Researcher's Biases

One criticism levelled to qualitative research is the scientific rigour and credibility of the researcher. However, this is heavily disputed in terms of the qualitative social science research (Crotty, 1998; Blaikie, 2009; Denzin & Lincoln, 2011), constructionist philosophical paradigm (Blaikie, 2007 & 2009), the case study approach (Eisenhardt, 1989; Flyvbjerg, 2006; Stake, 1995; Yin, 2014), logics of enquiry into the analytical processes (Sobh & Perry, 2006; Miles & Huberman, 1994; Fairclough, 2003; Vaismoradi *et al*., 2013). As such, the research strategy was explicitly designed to expose the researcher to conflicting realities of multiple informants so that the process would not be limited by her own preconceptions

(Eisenhardt, 1989). The role of the researcher is instrumental in the abductive process of "*teasing out and disentangling a complex set of factors and relationships*" (Easton, 2010:119) and therefore makes scientifically informed interpretive decisions. Furthermore, due to calls for greater rigour in case study research in the SCM field (Meredith, 1998), the strategy followed the criteria and protocol frameworks set-out by leaders in their respective methodological disciplines while adapting them to the complexities of the research problem.

3.5.3. Ethics

Ethics has a role in contributing to knowledge. Gordon summarises this as, "*An 'ethical' question: what kind of relations the role and activity of can the intellectual establish between theoretical research, specialised knowledge and political struggles*?" (1980:233). Plato's Cave analogy (1998), introduces the epistemological debate of voluntarism versus determinism as it invites us to consider the constraints that limit understanding. Therefore, social science becomes an ethically responsible and emancipatory pursuit of 'truth' and knowledge.

The reality of SSCM research is that it contributes to and legitimises the status of MNCs, particularly manufacturers. This can be seen by the majority of studies in this area (Appendix IV). As such, this research has set out to clearly examine the theory developed and knowledge produced in light of the value-orientation and commitments by acknowledging the Kuhnian (1996) concept of fashions and trends of knowledge and the Webberian (1949) issue of the distorting effects of the agents' (informants and researchers) own frames, *verstehen*. Furthermore, Weber also argues that there is an ethical instrumental rationality that goes beyond the instrumental and procedural rationality of the organisation that Research Objective 4 addresses (Wray-Bliss, 2016). Every effort has been made to critically evaluate and minimise the biases while explicitly moving away from predominant ways of knowing to address institutionalised imbalance and emancipate – an approach the researcher ascertains is highly relevant given the nature of the research – dominant paradigms in sustainability and globalisation.

Given the political nature of the research, respondents were provided a list of the interview questions and explanation as to their purpose. They were also offered the opportunity to remain anonymous or stipulate any particular terms they would like the

research adhered to in any future publications which would be shared with them (Appendix XVI). While all respondents made no stipulations regards their organisation, some did request that they remain individually anonymous. Therefore, all respondents were kept anonymous for consistency.

3.6. Summary of Methodology

The purpose of this chapter was to outline the research phenomenon and to justify the methodological choices. The constructionist epistemology described the philosophical underpinning of the chosen qualitative research methods. The study involved three components that addressed the aim:

- SSCM key business process model
- Causal mechanisms that explain how these are managed in practice given varying sustainability principles
- A critique of normative practices

Subsequently, research questions, research strategy and research design systematically reflected the purpose, aim and objectives of the research. An inductive logic allowed for the examination of complexity inherent in the phenomenon. An inductive approach relied *a priori* theory as sensitising concepts to explore empirical data inductively. A single critical, explanatory case study best suited to understand complexity in-depth, provide rich data from multiple sources that can be triangulated as windows into an imperfect reality. It had two levels of analysis: network determinants in the single case study of a supply chain network; and organisational orientation in the embedded subcases selected for maximum variation. The analytical technique followed TA, SNT and CDA analytical methods, consistent with the design logic. A conceptual framework of a business process model, and its causal mechanisms, was designed through theory building from facts acquired through observation. Finally, the methodology was evaluated in detail to establish validity, reliability, limitations, biases, strengths and ethical considerations of the study.

CHAPTER 4 CASE STUDY FINDINGS

4.1. Introduction

The purpose of Chapter 4 is to present findings from the case study. It describes the single critical case study of a global sustainable chocolate supply chain network. The case study is about understanding how the gestalt of sustainability orientation across the supply chain network shapes how the supply chain is managed in practice. The network and the commercial company, as a node within, were used as units of analysis to examine the case study across two levels of analysis – the network and its nodes. Theoretical concepts synthesised in the literature (Section 2.4.3.) provided sensitizing constructs to help understand and explore how sustainable supply chains are managed in practice. The practices of nine commercial companies were examined as nodes.

However, before this is done, an overview of the food and beverage sector (F&B) which helped contextualise the research phenomenon, is given. The purpose of this background study is to explain how the F&B sector was suitable for carrying out a case study within to examine the research agenda. Three contemporary issues the network members are trying to address are discussed. These provided a practical illustration of the SSCM framework through which theoretical concepts were examined and emergent themes and relationships identified.

4.2. Background Study of F&B Sector and Global Chocolate Market

This section describes the F&B sector, its confectionary category and the global chocolate market as the setting that contextualises this research. The context describes the value of insights from and to this sector. It is within this setting that the global supply chain network for sustainable chocolate is situated and its issues in how to manage sustainable supply chains are bought into focus.

4.2.1. About the Food & Beverage Sector

Classifying the Sector

The F&B sector involves any plant or animal commodity converted into food or beverages and the provision of its products and services. Within this system, there are primarily five types including primary extraction and farming, secondary processing industries, tertiary retail and commercial services, quaternary engaged in the knowledge economy and non-commercial services, and quinary where top-level decisions are made. Collectively they create an industrial system within which organisations are grouped together based on their business activities. The United Nations Global Company (UNGC) as the world's largest corporate sustainability initiative, classifies twenty categories including F&B. The UNGC categorise it as beverages and food producers, whereas the World Economic Forum includes agriculture. Due to the breadth of categorisation of commodities and industries, various organisations classify food- and beverage-types in many ways. The Food and Agriculture Organisation of the UN (FAO) list over 600 commodities and commodity groups (FAO, 2017). The UN Statistical Division structures the food manufacturing industry into five categories including the manufacture of other food products, within which chocolate is classified (UN Statistics Division, 2017). Euromonitor (2017) classifies the industries as production, manufacturing, retail, supply and consumer foodservice. It also has a comprehensive classification system for the F&B sector within which chocolate is positioned (Figure 4.1).

Figure 4.1: Euromonitor Classification of Chocolate as a Category in the F&B Sector

Sustainability within the Sector

The world population is projected to exceed nine billion by 2050 and they must be fed. This will require a 60% increase in global food supplies. Impacts of this will be a further a 45% increase in energy and 30% in water consumption (Food Drink Europe, 2015) and increase in agricultural N_20 emissions by 35-60% by 2030 (Smith *et al.,* 2007). Agriculture accounts for 70% of global deforestation (Rainforest Alliance, 2016), 69% of all water consumption in 2007 (FAO, 2014), and between 10-12% of greenhouse gases (Smith *et al*., 2007). In short, we have an ecological footprint of 1.5 planets; that is, people are currently using 50% more resources than the planet can regenerate to meet current consumption needs (IPCC *et al.,* 2014). Within this pattern, the F&B sector is the world's biggest purchaser of agricultural raw materials. Emergent critical issues in climate change, GHG emissions, the demand for arable land, deforestation, etc. pose large risks to food security and threaten the viability of their businesses. Coupled with resource scarcity is the amount of waste created, be it energy, packaging, under-realised resource usage or end-of-life (Christopher, 2011). Therefore, how the sector addresses the scale of its impacts on sustainability issues is of value not only to them but also the planet, global economy, and society.

4.2.2. The Global Chocolate Market

Confectionary and the Chocolate Market

The world consumes over three million tonnes of chocolate annually. There has been an annual 3% increase in demand over the last 100 years, making it one of the strongest performers in the snacking category. The global confectionery market was worth an estimated £1.5 billion retail value in 2016, of which chocolate confectionery was worth £79 billion. Between 2014 and 2019, this is expected to grow by 7.2% (Statista, 2016). The largest companies globally include Mars Inc. with a retail values RSP at 13.7%, Mondeléz International Inc. at 12.9% and Ferrero Group at 9.3%, with the top 5 companies with 53% of the market share in 2016 (Euromonitor International, 2017j). The largest brand is Cadbury, owned by Mondeléz with 4.9% retail value RSP market share, Kinder, owned by Ferrero Group with 4.5% and Mars Inc with M&Ms at 3.6% and Snickers at 2.6%. Euromonitor estimates that 95.4% of chocolate was sold in store-based retailing, of which grocery retailers sold 84.3% in 2016 (Euromonitor International, 2017h).

Due to macroeconomic trends, global chocolate markets are becoming increasingly polarised across developed and emerging market segments. Trends place the growth value in emerging markets where levels are expected to rise. There is a consumer trend in developed markets, representative of the ageing and growing middle class, who are consuming premium products with nutritional and healthy choices, and specific origins and flavours. Western consumers appetite for high quality, sustainable and ethically supplied products is growing (van der Vorst et al., 2009; Alvarez *et al*., 2010). 33,000 'responsible' products introduced to the top 'sustainability friendly' markets of France, the U.K, the U.S. and Germany from 2009 to 2010 (Agriculture & Agri-Food Canada, 2011). Another trend is that with global markets are experiencing a change in values, standards and a growing preference for healthy living. This is reflected in businesses' commitment to SDGs with opportunities to create new products, increase consumer base, and builds market leadership, brand image and customer loyalty (Euromonitor International, 2017a).

This growth sector has experienced a consolidation of power in MNCs, through mergers and acquisitions, strengthening the position of a few traders, manufacturers and retailers within the global supply network. This has strengthened the sector, as fewer actors use purchasing power and scale to influence global markets. As a result of this trend increased purchasing power has led to uneven value distribution across the supply chain (Exhibit 2).

Cocoa Production and Its Consequences

To meet this growth trend 3.5 million tonnes of cocoa beans are produced annually, with demand expected to exceed 4.5 million tonnes by 2020 (Barometer Consortium, 2016). However, it can only be grown in a very small tropical belt where production is declining. Over 70% of production is in the West African countries of Cameroon, Ghana, the Ivory Coast and Nigeria, approximately 17% in the Americas, i.e. Brazil, Columbia, Dominican Republic and Ecuador, and 9% from Asia and Oceanica – particularly Indonesia and India (Franchise Help, 2016). It is within these developing world countries that sustainability issues come into relief as risks and impacts are heightened.

Cocoa yield varies between regions, varieties, the age of the tree, and due to agricultural practices. On average between 400 and 450 cocoa trees grow per acre of land or roughly 1,000 per hectare. However, with climate change and decreasing quality and yield of plant stocks yield has critically diminished. In recent years' this decline has been due to sustainability trends. Farming livelihoods have become unsustainable. The main crop

season is spread out over several months with a bi-annual mid-season crops accounting for 15%-29% of the total harvest. Farm sizes vary between smallholders and plantations, and cocoa farms are generally considered subsistence farming as it does not provide a living income.

More than 5 million farmers and nearly 50 million people are dependent on this highly volatile commodity for their livelihood, many of who are among the 2.01 billion people living on £1.48 a day. For example, farmers in Cote d'Ivoire earn £0.37 per day and in Ghana £1.48 from cocoa (Barometer Consortium, 2016). The distributed value of income is 6.6% of the final sale price (Exhibit 2). Over the past 100 years, cocoa demand has risen on average 3% annually yet, where farmers received 16% of the price of chocolate paid by consumers in the 1980s, by 2011 they earned approximately 6% (Fairtrade Foundation, 2011). It is these issues of consolidation of power and value distribution inequalities that come into relief as focal companies seek to grow their business while scaling-up sustainability in their supply chain. The cocoa industry was facing a crisis – growing demand and declining cocoa production. Furthermore, political instability has led to volatile prices and market instability, such as in Cote d'Ivoire in 2010 when cocoa exports were banned saw a 16-year high of £1,658/tonne (Fairtrade Foundation, 2011). Action is being taken, particularly through industry initiatives such as CocoaAction, government and non-government organisations to address these challenges.

4.2.3. Value of Insights and Issues Arising

<u>Value of Insights from the F&B Sector</u>

> *"The global food industry, an enterprise in which over 4 billion tons of products are moved from field to table each year, can be broken into three main sectors: agriculture, food processing, and food retail & foodservice. Sitting in between agriculture and food retail and foodservice, food processing companies face demands placed on them by partners both upstream and downstream and are therefore central to the discussion of sustainable food production."* (French, 2008:6).

The Global Reporting Initiative (GRI) surmises that, as a sector, economic performance, market presence, indirect economic impacts, procurement/sourcing practices and overall disclosure impact environmental and social issues. Oxfam endorses this perspective. They

believe leading companies have the size and reach of global supply chains to effect a change in sustainable practices and drive sustained improvements economically (Smith, 2014).

The inherent tensions between the global economic system and sustainability (Appendix 1) threaten the well-being of supply chain stakeholders. Companies are having to understand the trade-offs between different stakeholders that have implications for demand, market commodities and price of commodities. Sustainable sourcing and market supply have become a vital component of core business strategy and operations. This can be seen by the 60% increase in sustainability reports between 2001 and 2013 as 92% of the world's largest 250 companies and over 90% of 45,000 publicly traded companies globally report on sustainability performance (United Nations Environment Programme, 2014). Since the first reports were submitted to the GRI in 1991, seven of the 'Top 10' Food & Beverage companies[8] identified by Oxfam as having the largest revenues globally have assessed their supply chain policies and practices along either GRI or non-GRI guidelines. Therefore, the industry has over twenty-five years' experience in sustainability reporting on policy and practices in tackling some of the world's largest and most critical issues and the challenges of putting those plans into practice.

Value of Insights to the F&B Sector

There are key challenges for the industry in embedding sustainability across their supply chains. Addressing these will help businesses improve the efficiencies and effectiveness of embedding sustainability. However, this is not a straightforward issue. Improving the efficiencies will also help the consolidation of power across global supply chains, which is increasing within global MNC focal companies. This is one of the key contributors to income inequality and why companies such as Nestlé and General Mills are taking a *shared value* approach or Mars who have strategically selected income as one of their five impact areas.

The reality is that businesses face many complex challenges and are each strategically selecting their own areas of impact and approaches to suit their business model. As companies are exploring how they can make changes in how they do business, they are having to find ways of negotiating supply chain complexity. While companies have different principles, priorities and approaches, they also have different cultures and company structures, all dynamics in characterising practice. Therefore, what suits one company in

[8] Associated British Foods, Coca-Cola, Danone, General Mills, Kellogg's, Mars, Mondeléz, Nestlé, PepsiCo and Unilever

practice may not suit another as the dynamics are different. Knowledge can be gained about stakeholder and partner principles and priorities and align these. By understanding the practices of each community, companies can understand external influences in managing these principles in practice – adapting them to meet their needs. For example, Mondeléz is "*taking steps to align what they [suppliers] do for us with our own values and goals.*" (Mondeléz, 2015:9). The UNGC recommends "*establishing sustainability expectations for the supply chain",* and then engaging with and strengthening their influence on suppliers with shared priorities (UNGC & BSR, 2015:23).

Once a company has ascertained what the different perspectives are, the challenge remains as to how to put those plans into practice. As General Mills explains, "*Sustainability is essential to the long-term success of our company. Every day we make progress in using better sustainability understanding in our business decisions.*" (General Mills, 2016:36). Knowledge can be gained about what the key processes for the implementation stage.

Finally, a new set of challenges arise, as companies extend their sustainability activities. Companies are finding ways of continuously improving and scaling-up programmes to deliver impact. However, difficulties are inherent in the complexity and scale. For example, geopolitical and macroeconomic issues make the process challenging. The UNGC estimates that 80% of global trade passes through supply chains. In their guides on how to manage sustainable supply chains, they sequentially address alignment, implementation, and extending activities by continuous improvement. This process of developing sustainable supply chains means that companies are learning how to understand and adapt to megatrends. Companies are learning how to build resilient and responsible supply chains. In doing so, they are developing their capacity to create shared commitments, find concurrence, collaborate, particularly at a sectoral level, and the increased use of technology as a transparency enabler (EY & UNGC, 2016)

Another aspect of extending activity is collaborating with sectoral peers pre-competitively to deliver impact and help companies to align with the sustainable development goals (SDGs). This requires the whole sector to find concurrence and ways of working together to address global challenges. Of the sustainability reports reviewed, all acknowledge the necessity of partnerships to address sustainability issues. One of the contributions of this research is to help understand how to extend sustainability across the sector for their collective future.

Real-world Issues Arising

The main research addresses three key challenges the industry faces concurrent with the SSCM alignment, implementation and maintenance model (Figure 2.4) respectively:

- Understanding the variation in sustainability perspectives
- How to put plans into practice.
- Extend sustainability activities

4.3. Description of the Network

The chocolate supply chain network is unique: as a trading network, it is relatively sparsely populated (to say palm oil) and cocoa can only be grown in a very small tropical belt. However, within it there is still a diversity of stakeholders, particularly those working to address sustainability issues. This study focused on commercial and non-commercial partners collaborating to embed sustainability. They represent a range of complex partnerships across the network. Therefore, this study is contextualised around sustainability practices within a chocolate supply chain network. It represents the network members collaborating to address sustainability issues in impact areas across the supply chain, thus creating a holistic view of a sustainable supply chain.

The reason it is important to consider the network in SSCM is that the impact of sustainability issues requires collective action, and the scale of these issues needs shared responsibility and collaboration. Findings indicate that organisations must consider the interests of other stakeholders. As one interviewee said,

> *"What I'm convinced of is that multi-stakeholder collaboration is necessary and multi-stakeholder collaboration does work. It is slow and tedious, but it does work and it's the only way to get there." (Sustainability director of a manufacturing MNC).*

These 'multi-stakeholder collaborations' are referred to as partnerships and play a central role in SCM. The network, therefore, bounds the study as a reconceptualization of SCM to incorporate sustainability requiring a stakeholder network view.

4.3.1. Overview of Chocolate Supply Chain Network

Within this network, there is a core linear supply chain that represents the commercial activities of primary industries. The chocolate supply chain is a relatively simple, linear

commercial supply chain through which the core commodity, cocoa, is grown, processed, manufactured, packaged and retailed as chocolate. It has five tiers across that are easily identified in the industrial system (Figure 4.2).

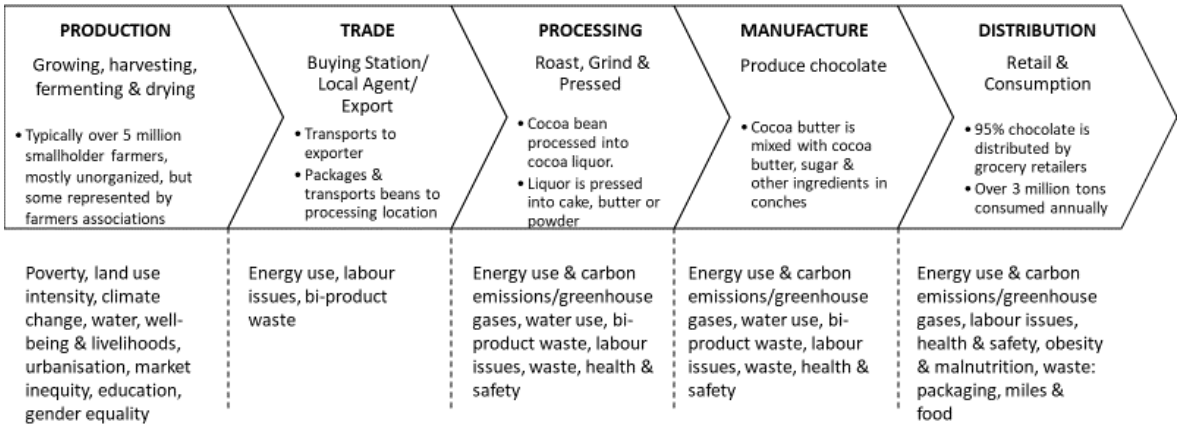


Figure 4.2: The Chocolate Supply Chain and Sustainability Impacts

The chocolate supply chain network consists of multiple stakeholders including commercial and non-commercial organisations[9]. Commercial organisations consist of primary commercial companies as members of the linear supply chain and secondary commercial companies who provide the supplementary products and services. The primary commercial companies are classified as farmers/farming associations, traders/processors, manufacturers and retailers. The secondary commercial companies are classified as packaging, 3PLs providers and warehousing. Non-commercial partners consist of NGOs, certifiers, national and local governments, international governmental organisations, trade unions, and specific stakeholder groups such as women, migrant workers, and children among others. This provides a description of the whole network out of which organisations were selected as nodes in the network

4.3.2. Mapping the Sustainable Chocolate Supply Chain Network

The position of a company in a network determines how it influences or is influenced by stakeholders. To map this network, three key elements were used:

1. Identify commercial and non-commercial partners
2. List individual and collective actions that denote centrality with partners
3. List structural and relational links with partners that denotes density

[9] For further detail on these stakeholders refer Appendix XX

The network was mapped by identifying the connections among organisations who are collaborating to manage sustainability. Secondary data was used to identify actors across multiple online sources. For example, UTZ (2017) listed over 1,800 registered cocoa supply chain actors that interacted with their organisation. This started with access to a manufacturing MNC from which their stakeholders and partners were identified. Next, a stakeholder analysis was carried out of the main cocoa and chocolate companies. These were approached and asked to participate. Of those who agreed, their partnerships were also mapped. Contact was made through existing network relationships used to gain introductions or cold-calling by the researcher.

The mapped network (Table 4.1) includes participant commercial (Appendix XVIII) and non-commercial partners (Appendix XVIX) as primary sources of evidence, and non-participant partners as secondary sources. The chocolate supply chain network illustrated in Figure 4.2 comprises 52 separate organisations collaborating to embed sustainability. Therefore, 52 nodes were analysed, and 351 relationships mapped into two primary categories – commercial and non-commercial partners – and their respective subcategories (Table 4.1). The organisations that constitute the five stages of the chocolate supply chain illustrated in figure 4.2 total 52. The range of organisations represent a cross-section of materiality considerations such as the commodities used in chocolate, including paper, plastic, cocoa, sugar, biscuits, nuts and fruit, and the megatrends impacts, such as carbon and waste.

Overview of Network Partnerships

In considering the realm of activities across the supply chain network, the majority of partners are clustered upstream in sustainable agriculture and commodities. 69% of all relationships were focused on agriculture activities. 10.7% of partnerships are with the WCF and ICI, compared to similar commodity-focused trade initiatives, such as RSPO on palm oil (5.8%), RTRS on soy (3.6%), and Bonsurco on sugar (2.4%). Within the cocoa cluster, there are numerous links and activities, such as agreements, strategies, workgroups, programmes, projects, conferences, webinars, publications, databases, that facilitate the exchange of knowledge and institutionalisation of best practices, principles and priorities. The WCF has 106 members, representing 80% of the global cocoa and chocolate market. This is the most substantial of all trade associations convened to tackle the issues that require collective action. The International Cocoa Initiative (ICI) was

subsequently established in 2002 to promote child protection in cocoa-growing communities. Other activities include the WCF's CocoaAction strategy and Cocoa Livelihoods Program, Barry Callebaut's Chocovision, the WCF's International Cocoa Conference, Innovation Forum's global series on sustainable smallholder development, to name a few. In addition, companies started their own initiatives to address sustainability risks to their core business and supply chains. The business case for individual action favours direct control and hands-on approach. These include a range of individual programmes and partnerships. For example, Mondeléz established the *Cocoa Life* programme, Mars' *Sustainable Cocoa Initiative*, Nestlé's *Cocoa Plan*, Barry Callebaut's *Forever Chocolate* strategy, Cargill's *Cocoa Promise*. Mars and Danone launched the £79m *Livelihoods Fund for Family Farming* aimed at increasing productivity in 2015. These activities facilitate numerous links for companies in the network. For example, Mondeléz has collaborated directly with Barry Callebaut in its Cocoa Life programme and indirectly through concurrent activities such as ICI and WCF board members, SAI Platform and CocoaAction members, and attendees at industry events such as Chocovision, WCF's International Cocoa Conference, and Innovation Forum's global series on sustainable smallholder development.

There are also clusters ubiquitous with the materiality of megatrends, such as deforestation and water. For example, leading commodity supply chains, such as the 'big four' agriculture commodities – palm oil, wood, soy and cattle, responsible for more than a third of tropical deforestation each year (CGF, 2017). Within the UK the leading commodities are beef, leather, soy, palm oil, rubber and cocoa, accounting for half of land footprint figures (Jennings *et al*., 2017). In cocoa, several countries have high deforestation but certification schemes, such as UTZ, Fairtrade International and the Rainforest Alliance to ameliorate this.

Downstream clustering focuses on waste and carbon. For example, Ceflex is a consortium of European companies and associations - including Amcor, M&S, Nestlé, Unilever, engaged in developing a circular economy of flexible packaging. Trade associations and NGOs, such as WRAP, Carbon Trust, IGD and CFG, are involved in similar initiatives around packaging, food and carbon waste. They have worked in partnership, exchanging knowledge and promoting activities. They are also indicative of the sector

developing its capacity to collaborate, maturing into sophisticated concurrent activities to address the complex and prevalent nature of sustainability.

Table 4.1: Categories and List of Organisations in Network Case Study

Primary Category	***Subcategory***	***Quantity of Nodes***	***Ref No.***	***List of Organisations***
Commercial	Farming Association	1	1.	Colcocoa*
	Processor/Traders	5	2.	Barry Callebaut
			3.	Blommer
			4.	Cargill
			5.	Olam
			6.	ECOM Agrindustrial
	Brand Manufacturers	7	7.	Danone*
			8.	Ferrero
			9.	Hersheys
			10.	Mars*
			11.	Mondeléz*
			12.	Nestlé
			13.	Unilever*
	Retailers	7	14.	Aldi
			15.	Asda
			16.	Co-op*
			17.	M&S*
			18.	Morrison
			19.	Sainsbury
			20.	Tesco*
	Packaging Company	1	21.	Amcor*
Non-commercial	Trade Associations	10	22.	Business Social Compliance Initiative (BSCI)*
			23.	Cabisco
			24.	Ceflex
			25.	Consumer Goods Forum (CGF)*
			26.	International Cocoa Initiative (ICI)
			27.	Institute of Grocery Distribution (IGD)*
			28.	Sustainable Agriculture Initiative (SAI) Platform*
			29.	World Business Council for Sustainable Development (WBCSD)
			30.	World Cocoa Foundation (WCF)*
	NGO	15	31.	Carbon Trust*
			32.	Care International*
			33.	Cocoa Barometer*
			34.	IDH Sustainable Trade Initiative
			35.	Oxfam*
			36.	Proudly Made in Africa*
			37.	Save the Children
			38.	Solidaridad*
			39.	Sustainable Food Lab
			40.	Traidcraft*
			41.	The Forest Trust
			42.	Voluntary Services International
			43.	World Vision

Certifiers	6	44. Waste and Resources Action Programme (WRAP)* 45. World Wildlife Fund (WWF) 46. Bonsucro 47. Fairtrade International* 48. International Sustainability & Carbon Certi41fication (ISCC) 49. Rainforest Alliance* 50. Roundtable on Sustainable Palm Oil (RSPO)* 51. Round Table on Responsible Soy (RTRS)* 52. UTZ*

* *Denotes organisations that participated as interviewees in this study*

N.B. The Chartered Institute of Logistics & Transport (CILT)* participated within the case study as an interview participant but was not mapped on the network diagram as it had no known collaborative or concurrent relationships within the supply chain network.

Network Structure

The two constructs used to map the network are centrality and density as they describe "*how the nature of relationship structures impacts behaviours*" (Rowley, 1997:893-894). These postulate the social influence (Marsden & Friedkin, 1993), power (Brass & Burkhardt, 1993) and the diffusion of supply chain practices (Roy *et al*., 2006). In the sustainable chocolate supply chain, companies have their own motivation to use business processes in certain ways. Management of these enables them to influence behaviour, the degree of SSCO and the extent to which they are influenced by other stakeholders. This is achieved by their position in the network and their ability to leverage power by positioning themselves centrally and building dense links. There is also evidence that companies are leveraging their scale, power and position in the network to determine its orientation.

Network Metrics

As previously explained, the network consists of 52 nodes with 351 unique relationships. Metrics are used to represent the values given to network features including the number of nodes, relationships, density and centrality (Table 4.2). They capture the dynamics of influence and social power. The cocoa network is characterised by highly centralised actors operating within a low-density network. To compensate for this, organisations who concur on the strategic importance of certain materiality impacts have created clusters. These clusters occur within collaborative partnerships in a commercial company's direct supply chain. Clusters also occur pre-competitively within the platform of trade associations

particularly among focal companies downstream with the power to invest in and leverage these communities. Within these clusters, the interconnectedness of links is dense. To compensate for the increased need to compromise within this dense situation companies, have kept the definition of sustainability broad and simple with a focus on dimensional priorities rather than ethical values.

Table 4.2: List of Network Metrics and Values

Metric	***Value***
Organisations	52
Unique relationships	351
Density	26%
Clustering coefficient	37%
Average closeness centrality	0.011
Average 'betweenness' centrality	23
Average Eigenvector centrality	0.019

Density – The purpose of analysing network density is to describe the overall structure of the network through actual connections (26%) that are a portion of potential connections. Therefore, density provides an understanding of the interdependencies among organisations by capturing the range of link – their quantity and quality – among organisations to facilitate the sharing of sustainability norms and related practices (Vurro et al., 2009). In terms of quantity of connections, the sustainable chocolate network is a low-density network. However, to augment this view of density, the quality of the connections is also taken into consideration. This is because it was beyond the resources of this study to identify the total number of unique connections between each node. The quality of the connections is described by the use of links among organisations and the degree of interaction (collaborative or concurrent) within the relationship. The subsequent section (4.3.3) on the Management Model provides a thick description of the links among organisations and a classification of levels of activity (described as high, medium and low) that qualify the density of the links within connections (Tables 4.3 & 4.4). Therefore, even though it is described as a low-density network through the actual quantity of connections, the quality of these connections denotes a high-density network with a high level of links actualised. In practice, this can be seen by how companies centrally position themselves within the network and build dense links so that they may directly influence sustainability alignment, implementation and maintenance (described in Section 4.3.3. *Management Model*). Furthermore, the institutionalisation of sustainability norms and practices can be

seen by the degree of concurrent interaction pre-competitively. Of the 351 unique connections, 117 (33.3%) are concurrent, of which 55 are with trade associations.

Clusters - Clustering occurs as a result of materiality impacts along the linear supply chain (Figure 4.2). This indicates the importance of local clustering and transitivity. In the network, the clustering coefficient is 37% meaning that on average this proportion of a node's connections are neighbours who are also connected to each other. This indicates a highly cohesive network with high local transitivity such as clustering of commercial companies within the manufacturing or retail industries clustering together in trade associations such as WCF, SAI Platform, CGF and IGD. Therefore, there are two significant communities: one upstream focused on sustainable agriculture and the security and stability of commodity supply; and the other downstream focused on waste and energy (as described in *Overview of Network Partnerships*). These two unconnected arcs illustrate that SNA is not holistic nor is the treatment of SSCM. The chocolate network is a sparse network with upstream and downstream clusters, each with their own arc that is highly embedded both collaboratively and concurrently. However, there are attempts to be holistic. For example, periphery industries, such as retailers are leveraging the betweenness and Eigenvector centrality of network members to gain access to farmers to collaborate with. There is also evidence of these peripheral members becoming more embedded holistically by building concurrent links with farmers through NGOs and trade associations, such as Solidaridad and SAI Platform respectively. These communities enable organisations to position themselves centrally within the cluster, while remaining on the periphery of the network. Examples of this includes Tesco and M&S's participation in the WCF downstream to strategically sustain cocoa production and IGD upstream to tackle waste. This also occurs within direct supply chains whereby the company is centrally positioned within its collaborative cluster. For example, Mondeléz and its collaborative partnerships with Barry Callebaut, Cargill, Olam, ECOM, Soidaridad, Save the Children, Swiss Connect, World Vision, VSO, CARE and Fairtrade International in its *Cocoa Life Program* and concurrent partnerships with ICI and WCF.

Centrality – The purpose of analysing centrality is to understand social power. It describes the structural centrality and influence in group processes (Freeman, L.C. 1979). Organisations seek positions of importance in relation to other network members in order to control influence. It is important to understand that an organisation's position to

influence other nodes can be used in different ways to varying effects. The ability to influence has several mechanisms that denote types of importance and influence, i.e. *closeness* as a structural dynamic, *betweenness* that captures the level of brokerage among nodes, and *Eigenvector* that denotes the influence of strategically connected organisations.

This research has illustrated that an important dynamic within supply chains is contextual constraints and the strategic importance of influencing others. Cocoa is a good illustration of environmental constraint affecting the behaviour of companies. For example, cocoa is not an important ingredient for all companies – for some, such as Unilever, Danone, Tesco, M&S and the Co-op, it is simply one ingredient in a product of many which could be within a multitude of F&B categories (Figure 4.1). These companies have less centralised positions within the network, compared to the main cocoa traders and manufacturers. In this instance, they have a more moderate level of strategic interest, and therefore centralise themselves without leveraging resources, links or scale to be highly influential or powerful within cocoa specifically. However, as will be discussed in Section 4.4. *Description of Commercial Companies,* they do centralise themselves within other networks of strategic value. For others, it is not only a high volume, key ingredient but chocolate that is critical to their core business. For companies who either use high volumes of cocoa and/or where cocoa is part of their brand identity the motivation for action is high. They have sufficient power to leverage change and place themselves centrally with dense links to have social power and influence norms and practices. For example, chocolate brand manufacturers, including Mondeléz, Mars, Nestlé, Ferrero, and cocoa traders, like Barry Callebaut, Cargill, and Olam, who are highly centralised, influential and act as brokers. As a result, there are variances in network position and behaviour due to materiality and how value is created.

The purpose of closeness centrality is to describe the organisations best placed to influence the whole network. In this instance, the similarity of the score (between 0.007 and 0.014) denotes a highly connected network. Furthermore, the low closeness score (0.011) means that partners are directly connected and have a high centrality. In contrast, organisations with a high closeness score are considered peripheral. 36 organisations had an above average score, denoting a highly centralised network. The types of organisations who lacked centrality were the retailers and trade associations not focused on cocoa or who represented an alternative paradigm, such as Traidcraft and Proudly Made in Africa.

However, the retailers who are committed to embedding sustainability are optimising clusters to place themselves in a central position within communities of strategic interest. For example, M&S has a high degree (19) and a relatively lower clustering coefficient (18%) because it connects to organisations who themselves are not connected to one another and therefore in a powerful central position of influence. This is captured by its high betweenness centrality (36). Another example, exemplifying a different mechanism of centrality is Tesco. It is connected to fewer organisations and strategically important connections in the sustainable chocolate network and therefore compensates for this having a higher clustering coefficient to leverage access to other members through membership of communities such as trade associations.

Betweenness centrality describes how a node acts as a gatekeeper and bridge. The organisation controls the flow of information and communication between other organisations in the network and the flow around the whole network. This indicates the level to which an organisation excises authority and controls communication and collaboration. The average value is 23, therefore indicating that any organisation with a higher level is a powerful gatekeeper and important bridge. An interesting phenomenon is observed regards brokerage as all the manufacturers, except Hershey's, and the three largest cocoa traders – Barry Callebaut, Cargill, and Olam - have positioned themselves as bridges between actors. This indicates the importance of these focal companies to control the supply chain between upstream and downstream actors. The exception of Hershey's can be explained by it not being a dominant actor within European markets, particularly the UK – only holding 0.5% the market share in comparison to 6.9% of global market share in chocolate (Euromonitor International, 2017d). It is also interesting to note that respondents described practices whereby they leverage other network member's betweenness centrality to gain access to connections outside of their realm of influence, resources and information.

Regarding those organisations that are influential across the network, 26 organisations have an above average Eigenvector score. The EigenCentrality captures the quality of an organisation's network in the power and status of directly connected nodes. As a more sophisticated representation of degree centrality, it assumes that not all connections have equal value in terms of quantity and quality of the connections. Those groups that tend to lack influence are retailers, non-agricultural trade associations, and NGOs. However, there

are exceptions, such as Cocoa Barometer (0.029), Solidaridad (0.036) and Oxfam (0.024) who are influential.

4.3.3. Sustainable Supply Chain Management Framework in Practice

In order to understand how the SSCM framework operates in practice, the SSCM model was examined. Firstly, a major feature that emerged from the empirical data in response to the real-world issues raised in the background study (Section 4.2.3.) is that the business model is a mechanism for interpreting real-world issues into a management model (Figure 4.3). Secondly, the management model illustrates a range of heterogeneous activities in how the links are used. These links can be observed in the application of the SSCM Framework by practitioners (Table 4.3). This finding substantiates Figure 2.4: *SSCM Component Model* by providing an in-depth study of the range of links that partners used from alignment to implementation to maintenance of processes. However, there is not a homogenous approach to the management of these. On further exploration, respondents described heterogeneous practices exemplified by levels of activity and different focuses on SCM and SSCM activities (Table 4.4).

Business Model

In order to understand how the framework functions in practice, it is important to understand that the business model, as a retrospective mechanism, enables the framework to work (Figure 4.3). The framework has been extended from the original theoretical conception to incorporate the business model as the mechanism that interprets real-world issues into a strategic business response, based on the predisposition of its organisational orientation. The business model describes the rationale as to how the supply chain creates, delivers and captures sustainability value. This rationale considers the business case for embedding sustainability in the core business model and, by extension any sustainable supply chain action. As sustainability is integrated into the business model, supply chain activity inevitably becomes an extension of this core activity. There is an emerging trend whereby sustainability is strategically integrated into the corporate strategy and, by extension, its value is captured in the business model. To do so, respondents described adapting business practices and the business model.

The extended model illustrates how practitioners create value through the alignment of principles and priorities, deliver value through the implementation of key business processes, and capture value through the maintenance activities such as continuous improvement, resilience and scaling-up approaches (Figure 4.3). This process gives continuity from the business model to the management model in response to real-world issues, illustrating the standardised links for each phase (Table 4.3).

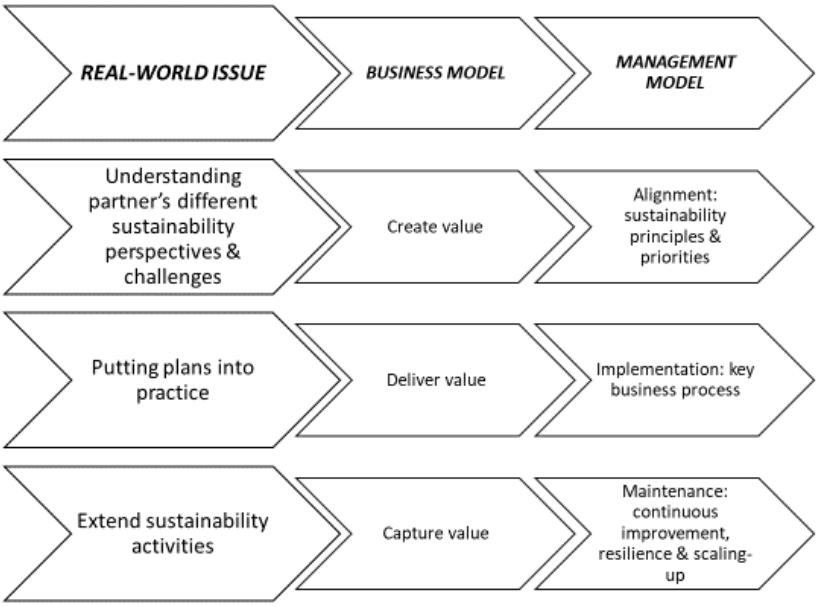


Figure 4.3: The Development of Business and Management Processes in Response to Real-World Issues in SSCM

Consistent with the findings in the literature, respondents discussed how companies create value in different ways. Parallels can be drawn between the stages of value creation and the organisational orientation towards sustainability, with increasing eco-centeredness leading to new business model creation.

Management Model

The management model creates value through the alignment of principles and priorities, delivers value through the implementation of key business processes, and captures value through the maintenance activities such as continuous improvement, resilience and scaling-up approaches (Table 4.2). Respondents discussed the types of practices associated with SSCM. It was evident from the responses that relational and structural links are considered practices. Respondents talked about different practices being appropriate within the phases of the management model and the types of activities associated with

these. These were developed thematically and the relationship between explored. However, first, an explanation of these are provided in Tables 4.3 & 4.4.

The model elements were developed thematically through axil and selective coding using NVivo (Table 4.3). The data indicated that companies utilise the links in different ways, exemplifying practices. These have been classified as high, medium and low in terms of the level of management activity in using the links to manage relationships with partners. This finding is consistent with the concept of styles of practice from high to low discussed in Section 2.4.3. (Table 2.15). The values given to the level of activity allow the degree of embeddedness to be calculated. This degree performs as an indicator towards sustainability orientation. For example, there are 14 structural and 13 relational links to be optimised. By giving the levels of activity a relative value of High = 3, Medium = 2, and Low = 1, structural optimisation would be 42. The level of embeddedness is the actual level of activity as a percentage of the optimum (highest) level of activity. Another indicator of sustainability orientation is the focus of links either on SCM or SSCM activities.

Table 4.3: The SSCM Model Phases, Activities and General Links

Management model phases	***Activities***	***General Links***	
		Relational	***Structural***
Alignment	*Internal* - Understand concepts, theories & science - Impact mapping & identify correct measures - Business case - Strategic plan - Create standards & policy *External* - Establish ground rules - Develop common language - Align goals - Decide resource investment	- Trust - Visionary - Passion - Ambitious - Opportunistic - Empowered - Champion of their principles - Leadership - Mandate & legitimacy - Accountable	- Organisational orientation - Understand impact along SC - SC transparency - Traceable - Resource investment & sharing - Supports, tools & model development - Technological
Implementation	- Enhanced communication - Technology coordination - Process coordination - Initiate activities - Joint development - Monitor & evaluate	- Adaptive/ flexible - Patience - Friendly - Professional - Create buy-in	- Data anonymity - Simplification - Efficiency - Mergers & acquisitions
Maintenance	- Continuous improvement - Resilience - Scaling-up	- Reflective	

Table 4.4: Classification of Levels of Activity as Descriptors in Managing Links

Level of Activity	***Descriptor***	***Exemplar***	***Data Source***
High	High level of management activity indicated by multiple data sources	**Structural: Transparency in Unilever** 1. "*We are now forcing our palm suppliers to become transparent*" 2. "*We're committed to sourcing 100% of our cocoa and sugar sustainably by 2020. As part of that commitment, we aim to secure our future supply and improve transparency in our supply chains, thus retaining the trust of our consumers. And by working in partnership with our suppliers, we're aiming to improve farmers' agricultural practices and enhance their livelihood*" 3. "*We are committed to reporting a transparent account of our progress each year*" 4. UK Modern Slavery Transparency Statement 5. Published targets and performance on sustainable sourcing including cocoa 6. Published a progress report on *Sustainable Living Plan* progress in 2016 7. Recognised as an industry leader among participants	1. Primary interview 2. Secondary document 3. Secondary - website 4. Secondary - report 5. Secondary - report 6. Secondary - report 7. Primary interviews
		Relational: Leadership in M&S 1. "*It's even more fundamental than that. As much as we possibly can, and there are boundaries to this, we do try to be a responsible retailer and we do not run away from problems and find the best solution. We recognise that we do have a leadership role within a retail sector. We believe that there are greater consequences to the decisions we make because of that leadership role, so others will tend to follow... And we have chosen, to some extent, to contradict our customer ask by staying with palm oil, by engaging an incredibly deep and complex level with the problems, and participating in almost every forum that you can think of that is created that our market presence will benefit from to achieve better palm oil production, and that's our kind of approach that, as much as the business can tolerate it, we will try to engage to create sustainable trajectories for these complex commodity challenges.*" 2. "*We don't want one-person leading stuff because then it tends to end up feeling a bit fragmented and a bit personal and a bit glory hunting. But also, the practical realities of if you've got 20 or 30 people within a particular group… So, you try to get usually about four or six companies that form a kind of sub-group, a leadership group, a working group, a steering group, whatever you want to call it, and they actually develop the thinking more rapidly so that we can kind of accelerate progress.*" 3. Regards a discussion on strategy, "*It's much more driven by individual business units, direction, leadership, need*." 4. "*We want to be recognised as a leader on transparency in the retail sector. We aim to achieve leadership positions in all sustainability benchmarks and indexes we participate in and report transparency on our*	1 – 3. Primary interview 4. Secondary - website 5. Primary interviews 6. Secondary - website

		performance. Benchmarking provides an external perspective on our sustainability performance and transparency." 5. Recognised as an industry leader among participants 6. Sustainability Leaders Awards 2015: Sustainability Reporting	
Medium	Medium level of management activity indicated by a few data sources	**Structural: Transparency in Danone** 1. In reference to a discussion with interviewee on transparency of KPIs in reporting, the respondent said, "For now it's internal assessment… we have social goals within our business on top of how we achieve internal business subjects we're been measured on. This is about uncertainty, transparency, trust and all of these things.". 2. Web page dedicated to transparency 3. Published secondary report on label transparency 4. Encourage practice of "*transparent, open dialogue with stakeholders*" **Relational: Leadership in Tesco** 1. Discussion in relation to building the business case, a respondent said, "V*ery often you find people in senior leadership, even if they don't buy into an idea, even if they don't see the risks you're talking about, or the benefits you're talking about, they just don't want to be seen as doing worse than their peers… They say, "well I might not want to be the best, but I don't want to be the last definitely." And that helps you make the case to say, we ought to be working on these areas*." 2. Discussion regards working with partners, a respondent said, "*It's good for us to align with those leaders, we want to learn from them but also become leaders ourselves and encourage others to get involved*." 3. Sustainability Leaders Awards 2015: Employee Engagement & Behaviour Change 4. Appointment of CEO, Dave Lewis – who came from Unilever, and CFO, Alan Stewart – who came from M&S. A strategic appointment of personnel from companies considered leaders in sustainability.	1. Primary interview 2. Secondary - website 3. Secondary - report 4. Secondary – website 1 & 2. Primary interview 3 & 4. Secondary - website
Low	Low level of management activity indicated by minimal data sources	**Structural: Transparency in Mondeléz** The interviewees did not discuss 1. A new approach to transparent reporting such as child labour in the cocoa supply chain **Relational: Leadership in the Co-op** 1. In a discussion about the experience and expertise in the Co-op as a business with sustainable and ethical principles sharing that knowledge with mainstream, traditional business models, the respondent did not engage. Rather she created a 'them and us' scenario whereby it is "*hard to build the business case in the retail environment*". 2. At the trade event, the respondent did not take a central role, was not outspoken in group discussion, and had a limited presence.	1. Secondary - website & report 1. Primary interview 2. Primary – social episode

Alignment - The purpose of the alignment phase is to understand partners' different sustainability principles and priorities. As Mondeléz explains in its sustainability report, "*We work with thousands of suppliers, consultants and business partners around the world. We are taking steps to align what they do for us with our own values and goals*" (2015:9). Concepts are kept broad and simple, with emphasis on the dimensions and economic model consistent across the supply chain. For example, a retailer explained the alignment activities of a retail group as a pre-competitive level,

> *"So, what we've done is we've said that what we have to do is we have to have accountability or custodianship by the key actors. We have to be able to evaluate how well they are delivering against our policy requirements. So, what we've done is, as a retail group, we're all pretty consistent in our policies in the top line, there may be subtle differences in the detail but top line we're all looking at the same thing."*

While a manufacturing respondent explained alignment within a linear supply chain,

> *"We take a standard, if you like the standard definition of sustainability as being activity economically, socially and environmentally sustainable in the long run. We take a pragmatic perspective on it. We look to see were the biggest impacts and therefore the biggest opportunities to make a difference. And we seek to integrate as closely as possible within our business model. So, it's quite broad-based… By defining the agenda and agreeing on the priorities, it means that we pursue through our own engagement with our own suppliers – we might be working to an increasingly harmonised agenda… The idea is that we work together as a partnership. So, we all feel some ownership, and we're all there for different reasons. Ultimately, we're there because we want the cocoa to make chocolate. Barry Callebaut is there because they want to buy cocoa and sell cocoa. The farmers are there because they want to get a better income. So, there's slightly different reasons why you're there but I think at the end of it we all want the same thing."*

The trader, Barry Callebaut, summarise this in its sustainability report as "*In order to secure the future of chocolate, all the actors in the chocolate value chain need to unite behind a common ambition and step up their efforts to address these structural issues*". As illustrative in the manufacturer's quote, external alignment with partners is kept broad and simple, while allowing flexibility for the company to align internally with the priorities set in the strategic agenda and its business model. The challenge is that partners have different value propositions that give them a competitive advantage. To overcome this, companies are developing partnership capability to deliver a collaborative advantage. This is done by developing a common language, aligning goals and identifying common principles. It is

recommended that the alignment phase is kept simple so that complexity is reduced, and common ground found across heterogeneous concepts so that relational behaviours and structural activities become standardised. This makes aims and decision-making more achievable the implementation stage and creates a baseline for maintenance improvements. It also creates buy-in and enables shared responsibility and collective action, as explained by a manufacturing respondent who is a leader in trade associations, "*What we're seeking to do is find a way of getting to that point where everybody in the sector is approaching issues in similar ways*".

This necessitates the capacity of actors to change and behave in certain ways, often different from the traditional business culture. These practices begin with trust and the mandate to make decisions, as information needs to be shared so that common ground may be found. 22 (out of sources analysed including 36 respondents and supporting text) respondents described the need for ambition, vision and passion to create buy-in as in early stages of development action is usually driven by one individual. It also requires opportunism, innovation and creativity to realise new supply, production and market growth opportunities, and a change in mindset and business behaviour to a new set of trade-off values between short-term versus long-term gains. As an industry watchdog explained,

> *"I think that in the cocoa sector we have seen moments where leadership really has rattled the industry into action. I think that when Mars announced their 100% certification goal, I think it moved the goal posts. It really said okay, that's the new thing we need to aim for and so there are moments clearly when leadership has made a difference, as has for example the collaboration within Cocoa Action. A whole bunch of the top executives in these companies saying okay, let's move this conversation along. You can argue long and hard about whether they're moving it along fast enough but that was visionary on the level of pre-competitive collaboration at the very least."*

However, respondents also describe disruptive relational behaviours that inhibit action. These behaviours include fragmented decision-making (5 sources), siloed thinking (14 sources), lack of top management support (32 sources), and lack of accountability (14 sources) which impact on the sustainability systems.

Alignment also requires structural changes internally across business functions and externally across the supply chain and a consideration of the principles upon which activities are based. For example, one manufacturer explained that it is about "*really*

looking at the complete system and not looking at the packaging in isolation." This scenario becomes highly problematic downstream as was explained in detail by a trade association respondent. In this instance the respondent was discussing the limitations of the circular economy and why internal and external alignment is necessary:

> *"I've got an axe to grind about the circular economy. Everybody… in fact there's all these circles to allow us to make better use of things that end up where they were initially intended to end up. And if you build those circles they eat… they magnetise, they attract streams and people rest on their laurels – not only that. If you get departments within retailers and manufacturers and other organisations as well, where if you get an income stream associated with the salvage value of any one waste stream, you'll get KPIs set against income from those streams. And low and behold, you've cemented in, this time not through capping but this time through KPIs, you've cemented in a target and people will emphasise and do stuff that is not overall the right thing to do from an environmental, social or economic aspect.*
>
> *So, these are some of the loops, very powerful reinforcement loops that do exist in a situation, in a system, which suffers mainly from a lack of such powerful loops that take us in a positive direction. So, no, there is a massive lack of consequence management because people do not know the consequences of their actions. [For example] the key thing about material waste is that where it occurs is not where its caused. So, a lot of the conversations in portholes and wrap and stuff, and a lot of the conversations that actors along the chain are tending to have are about the percentage of waste that occurs, and my territory compared to the percentage of waste that occurs on other people's territory, whether that be farm, household, manufacture, retail, etc. And this is a very shallow discussion because you need to get to cause and understand that a lot of the causes elsewhere in the chain are due to decisions somewhere else again."*

As evident from this quote, complexity and/or restricted or limited visibility along the supply chain inhibits transparency, traceability and effective alignment. Respondents explained how resources (33 sources), tools (24 sources) and models to assess impact (34 sources) are important measures required to align. However, there is a lack of these materials particularly more qualitative societal impacts, that inhibits understanding and delivering impact. For example, a manufacturing respondent explained,

> *"The other area that I would highlight is that for the socio-economic stuff it's a lot harder because it's harder to form a view of where the biggest impacts are. Because socio-economic impacts often not well researched within supply chains and so we are increasingly focusing on how to build the view, in a systematic way, of where key socio-economic impacts within supply chains so that we can then seek to address. And again, all those complexities about being difficult and time-consuming, and use of indirect influence come to play very much so within social issues in the supply chain."*

Implementation - The process of putting plans into effect moves the management model into the implementation phase. It is the process by which strategy is interpreted operationally. It is this phase that focuses activities on fulfilling the goals and plans. As such, Section 5.3. *Processes* describes in detail how the key business processes are implemented.

Respondents find it challenging to put plans into practice because of the complexity (21 sources) and siloed thinking (14 sources) from which challenges regards the scale of issues, divergent attitudes, and varying levels of commitment internally in business functions and across interconnected businesses become evident. This requires members to trust, be patient, flexible and provide transparency across their supply chains to disclose risks. For example, a trade association respondent explained how a retail member wanted to take a landscape approach, rather than a commodity one, to organise collective activities. This is illustrative of a company with more experience and sophistication in the approach they take that not all association members collaborating pre-competitively would have. Therefore, the respondent explained how it is very complicated to get agreement among members as, generally, the business case is built around commodities, which determines the level of commitment, investment and activity. Another retailer explained this as,

> *"How do we create solutions that give us lowest inconvenience, lowest cost, easiest communication and implementation, and how do we need to develop? The best bet for our sector that will be, in effect, an 'off the shelf' solution for our suppliers and as standardised as possible, as simple as possible."*

To overcome these challenges and share commitment, businesses are exploring ways to deliver value at various levels. Respondents explained that the degree to which plans are put into effect depends on the capacities of individual members to integrate and collaborate.

The levels of structural integration and relational collaboration are dependent on the collectively agreed value proposition aligned with organisation orientation and resource allocation. Simply put, companies will commit time, manpower and resources, and leverage corporate scale, to the degree they feel is strategically beneficial. For example, the level of collaboration is exemplified in the commitment to cross-functional teams, level of communication and knowledge-sharing, and initiation of collaborative activities and joint development. This level of activity, whereby the alignment though goal setting and findings a common language is actualised in implementation was evident on all the commercial

company and trade associations published texts that explain how they collaborate (reports and websites). Even Colcocoa, who are resource poor and have limited published resources provide this type of implementation framework (see Section 4.4.10). As one respondent explained regards human rights which has been one of the greater challenges in addressing, "*There is an increasing common accepted framework about how businesses can engage with human rights*".

Structurally, integrating sustainability requires resources fitness such as the capacity of members to share and invest (24 sources), technology coordination (7 sources), and monitoring and evaluating activities (all respondents) which require accountability (14 sources), traceability (17 sources) and transparency (22 sources). To do so requires the capacity for holistic thinking and coordination regards targets and measures. As a certification organisation respondent explained regards a multi-stakeholder approach,

> *"Making sure that the different sides are taken into account and let's say the importance of scientific insights [is important]. As, for example, when we design a code of conduct, so the standard itself, then also let's say the principle starting point it should be based on the best possible practices that are informed by scientific research. That's I think some of the key things. I think you have to deserve it the trust and the credibility in how you operate in several ways. In that, we have to work together in the ICO organisation or as a platform where we have different codes applied to ourselves. So, we have to comply with the impact code or with the standard setting code so there are certain rules on how we need to function and is being audited by an external body. We ourselves, are being audited by certain parties but also we what experience and so we welcome is that we are also audited by our major clients, so they want to know how our systems perform."*

The results for businesses in implementing key business processes are delivering value relative to their levels of commitment, integration and collaboration, and capacity to do so. This was summarised by a retailer who discussed the level of engagement relative to commitment, integration and capacity as, "*I don't know that full engagement all the time is required, it's the right engagement at the right time by the right people*."

Maintenance - Having aligned and implemented key business processes, the next stage is the maintenance of management activities. This advanced stage of management seeks to capture value by extending activities through the processes of scaling-up (12 sources), resilience (8 sources) and continuous improvement (13 sources). Across this phase, there is a maturation as practitioners learn from experience. For example, 20 sources specifically

referred to alignment and this was heavily substantiated by extended discussion on relational links, practices, features and elements that substantiated this primary phase of interorganisational management. Whereas, 19 sources explicitly referred to implementation. In comparison, the maintenance of sustainable supply chains and how it manifests in business practices remained more exploratory and tentative. Eleven (out of 36) respondents talked about this phase of management explicitly, however, only three of these represented commercial companies while the other nine respondents represented trade associations and NGOs. However, an additional eight texts analysed, specifically company sustainability reports of commercial companies, also described how they maintain their supply chains sustainably. For example, Amcor (2017) describe how they continuously improve sustainability performance. These respondents reported the capacity to reflect on data, learn and adapt priorities is necessary, while also helping their partners improve by providing tools, resources and assessment models. While, others such as Barry Callebaut encourage collaboration in order to scale-up and continuously improve,

> *"Barry Callebaut launches Forever Chocolate; an overarching, holistic, strategy to scale up our own, and industry's, efforts. By setting four ambitions, time-bound targets on eradicating child labour, prospering farmers, thriving nature and sustainable chocolate we want to move beyond sustainable cocoa. By annually reporting our progress against these targets in a transparent and measurable way, we hope to unleash the sense of urgency to find the creative solutions this cause deserves"* (2017:7)

Continuous improvement is done by monitoring, evaluating, and sharing best practice to replicate activities. Value is captured through learning, communication and technology. This is what one manufacturing respondent described as "*continuous application of learning*". Proof points, through the standards and indicators, to evaluate and verify impacts, are important for practitioners as they increase learning and confidence and reduces risk. As one NGO respondent who works with farming communities to improve sustainability practices explained,

> *"One thing I think is that what is the most important driver for change is to see things work at your neighbour's and really if you manage to have a real sustainable supply chain in place and that works for those who are involved in the supply chain, anybody who sees that would want the same and that it's really a matter of copying and there's not so much required to do that."*

Evidence of this necessity for proof points was evident across the supply chain. A manufacturing respondent explained this in the context of manufacturing as,

> *"Most factories who are doing well have done something and it accelerated. Most factories who say they can't do anything, it could never work here, have never done one thing. But as soon as you do one thing [proof point] it's scalable. So, the way to make it work is to make as simple as possible, as focused as possible."*

Continuous improvement also strengthens a company's position in the network as it improves their stance as leaders, sharing best practice, and being authorities on the activity. For example, a manufacturing respondent describes the process: "*I think it's not about being pilotty. I think you can learn as you do stuff but set-out where you're going. And even just saying that. You know, Unilever saying, "We're going to do this." Other businesses sort of come along."* Respondents describe how to do so requires the capacity to be reflective (5 sources), flexible and adaptive (13 sources). For example, in the Co-op's sustainability report it describes the process, which requires long-term commitment:

> *"As well as tracking progress against targets, we believe that better sense can be made of how we're doing if we compare our performance to that of our peers. We include relevant performance benchmarks throughout our reporting, detailing not only where we lead, but also where we strive for improvements."* (2016:6)

Enhanced communication among partners includes sharing knowledge and educating. Knowledge exchange improves impact by sharing best practice and discussing issues and solutions. As a manufacturer explained,

> *"I think that is something that we need to ensure we are ready for and we're adaptable in how we can work within whatever it throws at us. That's why we're doing research to try and understand what it is going to throw at us. And of course, we're not trying to it just for ourselves and keep it to ourselves. We want to then share this with our suppliers because it is going to affect them as well."*

Education delivers skills, key messages, and standards, policies, legislation and regulation, and cascades activities for further integration and collaboration. Value is also captured is through technology and big data. The expectation is that big data will boost performance and innovation. This sub-process of integration is optimised through sectoral activities due to the scale of data gathered among network partners.

Resilience is an important aspect of SSCM due to the complexity, disruption and risk of sustainability issues and megatrends that negatively affects delivering value. Respondents, advanced in this area, are now seeking to develop their relational and structural capacity for resilience. In response to a question whether re-engineering business processes is required to build resilience, a trade association respondent explained, "

> *Yes, there is an element of that. Without a shadow of a doubt. Because when you ask supply chain leaders, two questions. The first question is what are the biggest risks, sorry, what are the biggest risks posed to your supply chain and are likely to cause intervention? And you get things like supply failure and IT systems failure etc. Which are kind of the stuff that's in every business' continuity plan."*

However, it is a relatively new concept in the context of SSCM. As one trade association respondent who is taking the lead on developing the capacity of the organisation's retail and manufacturing members explained,

> *"Resilience has long been an area of importance, but it's only in the last year, or last six months really that it has become an issue that our supply chains vehicle, that's quite important and it can be resilient from a systemic point of view, resilient from a point of view of minimising the interruptions of risks and supply to, and events that come along. And resilience from a people perspective. Bearing in mind the things sort of rate and pace and scale of supply chains as a whole over the last few years. So, resilience is now becoming one of those trendy topics that does relate to sustainability. I think once people realise that this is actually relevant they are quite keen to get on board with it, and it's been a much easier sale than I had expected."*

To do so requires increased structural transparency, traceability and technology to make risks visible earlier. This, in turn, requires the capacity to cooperate, communicate and work closely with cross-functional teams to achieve this visibility and deliver improvements. This requires trust and a change in mindset from competitive to collaborative advantage as benefits are significant. The activities respondents reported using to capture value for resilience included continuity planning (8 sources), forecasting (1 source), install redundant capacity (1 source) and capacity development (4 sources). However, to do so requires a reappraisal of the design process - re-engineering processes and systems and increasing visibility and awareness. A potential consequence of integrating sustainability can be the issue of process duplication as part of a fail-safe system to manage risk. However, this creates 'redundant capacity' which may be considered inefficient in the short-term. This concept was explained by a trade association respondent working to develop resilience:

> *"There is a connection between resilience and sustainability. At that more sort of, more holistic level and over longer term. In the short term, resilience and sustainability can clash. Because one way of addressing resilience can be to install a whole load of redundant capacity. Whether that be growing more food and crops than we actually are likely to need, or you know whatever it might be. But they can take the idea of installing additional capacity. So, that if something comes along that wipes out 50% of your capacity, you still have the other 50% to work*

with. And there are lots of areas where resilience and sustainability do clash. But I find that resilience and sustainability tend to fit together."

The third aspect of capturing value is scaling-up activities. This is closely linked with the capacity for continuous improvement and resilience. Of the three, this was the most widely discussed and understood by respondents of the three aspects of maintenance. Scaling-up also presents the strongest evidence of how a company leverages its position in the network to influence its orientation. An extensive and explicit account was provided by an industry watchdog of one such example in response to a question the researcher asked about whether a MNC leverages its scale to drive their sustainability agenda rather than that of the farmer,

"Yes, of course there are ethical issues. First of all, the whole question surrounding the agency. If a company decides. Let's take this away from the abstract and make it a practical. It's not a theological exercise. There's actually a concrete case in play at the moment. The Mondelez and Fair Trade just announced a new partnership on their Cadbury programme two months ago where up 'til now the farmer co-ops were operating under the Fair Trade system. Meaning that every time it was cocoa, there's $200 dollars premium that was paid to the co-operative, not to the farmer themselves but to the co-operatives. The co-operative would then collectively decide how that money is then spent. Mondelez and the Cadbury brand have shifted their purchasing funds to Fair Trade certified cocoa to that cocoa bean part of their own company programme, Cocoa Life, which will now be run by Fair Trade. Fair Trade will be the implementing partner of the Cocoa Life thing. Now what will happen is that this $200 dollar premium is no longer in play. Instead of that there will be a Cadbury premium which is, first of all, a lot lower but they are also however investments in that Mondelez will make to their Cocoa Life programme.

The question I asked them is so under a Fair Trade system the co-operative farmers themselves would choose how that premium was spent. What part of that would be turned into the cash transferred to the farmer? Whether that would be invested in increase in productivity and measures and trade systems so building warehouses, drying stations, that kind of stuff. The farmers that collectively through the co-operative would choose how that money was spent. Under the Cocoa Life system that money gets assigned by Cocoa Life. Now it gets done in dialogue with local communities, so their answer is no, it's kind of the same thing but in essence actually the farmers direct right to choose how that money is spent is taken away from them. From that moment on they are consulted but they no longer have the choice. If a multinational makes a choice, and they didn't even think of it that way. That's one of the dialogues that we're having with them, but you take away agency and ownership."

A company can scale-up (or down) sustainability in programmes, across the supply chain, across other supply chains, and sectoral initiatives. To do so requires an understanding of the mechanisms for leveraging the power to scale-up. These include taking advantage of the scale of operation measured by the amount of output produced, operating leverage, scaling-out model, and scaling-up or down depending on demand and value. This introduces dynamics of power whereby the company needs to consider its power:

a) To leverage scale relative to its partner (24 sources)
b) Whether it has a direct or indirect influence on partners or commodities (21 sources)
c) Vertical integration, how to consolidate power, dominant paradigms (7 sources)
d) Whether they are perceived as leaders (3 sources)

As sustainability becomes more embedded, the levels of scaling-up are indicative of sustainability profoundly affecting the core business model and systemically changing business values. As a manufacturer explained, "*We have to change the business model or the success definitions for business*."

There is some opportunity to capture value due to the first mover advantage, often running products as a loss leader to capture sustainability value if they have the scale to leverage. This was the experience of two retailers who took their learning from other product categories (tuna and cotton) to understand how they can use a product to establish their reputation as leaders in sustainability. However, increasingly businesses are discovering the advantages of the scale of collaborative action, particularly from supply chain collaboration to sectoral concurrence. A retailer went on to explained,

> *"Our path is to find the things that allow people to work together. Champion it and say, "This is a great solution and it allows everyone to join in." It's not just about someone else's being able to say we're the best. And so, we lead the collaboration and that's where I view our role - fitting with manufacturers."*

Another retail respondent also explained the importance of leveraging collaborative action in a position of leadership:

> *"As much as we possibly can, and there are boundaries to this, we do try to be a responsible retailer and we do not run away from problems and find the best solution. We recognise that we do have a leadership role within a retail sector. We believe that there are greater consequences to the decisions we make because of that leadership role, so others will tend to follow… So actually, how do we*

> *support our wider landscape and industry transformation rather than just creating islands of green that just supply to M&S? It's very much our kind of emerging thinking, which is why we get so involved in industry collaboration because our volume is never going to be sufficient to leverage that kind of change. We actually do need to get an awful lot more people on board."*

Another issue is that scale is captured differently across categories in relation to procurement and market share. For example, a company may hold market share as a category leader but purchase low volumes of a commodity and vice-versa. On the other hand, contextual constraints may profoundly impact the supply chain, but the commodity or megatrend may not be strategically significant. Strategic planning is important in scaling-up as it provides understanding of where the commonalities and differences between programmes, commodities, and supply chains exist. Of particularly value within this process are mapping impact, identifying correct measures for evaluation and the capacity for traceability, transparency, learning, reflection and sharing knowledge.

Issues Arising

It became evident throughout the research process that alignment, implementation and maintenance of key business processes by which sustainability is embedded across the supply chain, and the capacity of organisations and actors to do so, was of concern. Companies were at different stages of development and had varying understandings of how best to manage sustainable supply chains. Though there was a general understanding of the management components required to manage a sustainable supply chain, the relational behaviours and structural activities were varied among respondents, indicative of different styles. Research shows that there are two mechanisms that determine how a company manages its supply chain in practice: 1) organisational orientation (Section 4.3.3 *Business Model)* and 2) position in the network to control behaviour (Section 4.3.2).

Research findings infer that organisational orientation determines how a supply chain is managed in practice. An NGO respondent explained how a company weighs the value of shareholders versus stakeholders and makes the business case for sustainability based on its value propositions. He said,

> *"I think we need to look under the hood of the company. How is it wired? How's it governed? How is it owned? And then how is it then defining its interests because that becomes a reference point for what the business case is measured up against."*

Preliminary findings suggest that sustainability orientation determines a style of practice based on business model, stages of value creation, and level of concurrence. Practices are based on variations in sustainability orientation from high to low as described by respondents. To examine this further, each of the commercial companies is provided as subcases of nodes within the network. The two levels of analysis are applied to examine the range of practices from which patterns in the data emerged. These findings are presented next.

4.4. Description of Commercial Companies

Within the case study, nine companies were selected purposively as subcases to examine the units of analysis. As commercial companies, they illustrate the range of industries across the supply chain. They also present maximum variation of organisation types, including publicly traded companies, family-owned businesses and co-operatives.

Consistent with the critical logic of inquiry and the argument set-out in Section 3.3 *Research Philosophy*, the purpose of the following data is to understand how the organisations portray themselves in terms of sustainability. The data demonstrates how variations in organisations interpretations of sustainability influences how they give meaning to the values, norms and behaviours. The research did not judge the sustainability of any stakeholder based on a normative conceptualisation of sustainability based on the researcher's subjective world-view. Rather the study sought to understand how the stakeholders created meaning using thick descriptions. Furthermore, the research found that some organisations, especially Unilever and M&S, were help-up as exemplars of best practice by some respondents. This draws on the themes of legitimate and referent power. Therefore, the research did not critique whether these organisations were sustainable. Rather it sought to understand the implications of types of principles and practices in terms of isomorphic mechanisms and institutional theory developed theoretically in the next chapter.

4.4.1. Overview of Subcategories

The subcategories of commercial partners selected for this study illustrate the range of industries collaborating across the supply chain network. Four manufacturers, three

retailers, one farming association and one packaging company were examined[10]. A limitation of this research was the omission of traders as subcases, as they are a primary stakeholder in the linear supply chain. Several traders, Barry Callebaut, Cargill and Olam, were approached to participate but declined. However, primary evidence through observation at an industry event and secondary documentation evidence were gathered.

4.4.2. Sub-case Study: Mondeléz International

Organisational Orientation

Structure – Mondeléz International is an American publicly listed MNC, configured to deliver shareholder value. It has 126 shareholders, commonly listed as activist investors and hedge funds looking for short-term profits. The formal organisational structure is a matrix, with a mix of divisional and functional roles on the executive team, who have a centralised power-base in the company headquarters. Formal strategic mechanisms such as organisational structure, strategic planning, governance and standardisation are centralised and hierarchical, controlling the flow of information, decision-making and resource allocation. The corporate executive is a mix between business functions and geographical divisions. Product type divisions are not a significant feature as the company has consolidated its brand portfolio in the snacking category. The sustainability director reports to the CEO as overseer of the Board of Directors Committee responsible for overseeing public affairs, and the executive team's Well-being Leadership Team.

Strategy - Mondeléz is focused on delivering shareholder return, defined by a dominant culture of mergers and acquisitions, indicative of an ego-centric company. However, from the start of this reconfigured new growth company in 2012, well-being was placed at the heart of the company's business model to achieve competitive advantage, business growth and sustainability. Ongoing mergers and acquisitions and intra-company trade are an important aspect of the company's strategy of sustainable growth – creating a fragmented and uncertain culture. All sustainability activity and investment must be configured in line with cutting costs, accelerating business growth and competitive advantage. Of the three sustainability dimensions in its TBL model, the emphasis is placed on the economic bottom line. However, increasingly a broader and more integrated understanding of sustainability

[1010] For further detail on the commercial companies selected as subcases refer Appendix XX

is taking into consideration stakeholder influences, thus changing business practices.

Culture - There is a tension between the perceived corporate values and management values in practice, the insights of other participants, and the experience of the researcher. For example, while driving growth and simplicity are consistent between corporate strategy and management, the perceptions of openness and inclusiveness of management practices vary across brands and commodities. There is recognition that while simplicity is necessary, in reality, management is complex. Other respondents did not consider the company very trustworthy, open or inclusive. In the experience of the researcher gathering data and trying to gain access to participants, the company was very reticent and closed.

Sustainability Principles and Priorities - It is positioned as part of the broader strategic agenda of well-being that supports one of its five growth strategies. The strategic plan has reoriented its focus since 2016 to a focused and accountable style, as illustrated in changes within its sustainability reporting series. Its sustainability values are performative and utilitarian. The use of language in reporting, though subtle, still constitutes an indirect force of utterance whereby the company considers the impact of sustainability on or for company growth, rather than the impact of company growth on sustainability.

The company takes a broad, interpretation of sustainability based on the TBL model. The emphasis is on environmental sustainability, particularly resources and agriculture. It is beginning to address social issues but, concurrent with other respondents, finds it difficult to develop measures. The economic pillar focuses on sustainable and responsible business growth to drive profit, with some evidence of integration of ethical standards. There is little evidence of it considering sustainable economic principles of other stakeholders, such as value distribution and living income.

Strategic priorities along its supply chains are selected using a materiality impact approach. Supply-facing impact focuses on the security of supply, environmental footprints and social challenges, manufacturing focuses on environmental footprints and safety, and customer-facing priorities focus on consumer well-being. These priority areas are guided by internal and external experts, as well as shareholder indices, such as the Dow Jones Sustainability Index (DJSI) and Access to Nutrition Index.

Cocoa is a critical commodity generating sales of £491 million (Addy, 2014). Chocolate supply chain partnerships range from upstream agriculture, waste and manufacturing initiatives, midstream waste and distribution initiatives and downstream waste, healthy

eating and community initiatives. Mondeléz's signature programme is *Cocoa Life*, in which it has invested over £284 million over 10 years and committed to 100% sustainable Fairtrade certified cocoa. Partnerships include Cargill, WCF, ICI, RSPO, Indonesia Sustainable Palm Oil Initiative, CGF, SAI Platform, World Economic Forum, WRAP, IGD, International Food & Beverage Alliance, among others.

Business Model - At the core of the business, there is a TBL model, but sustainability is limited in its depth of integration which can be seen structurally and culturally. Therefore, the company is more ego-centric in its orientation. However, as the business model depends on the value leveraged on purchasing from commodity markets, i.e. buying huge quantities of cocoa cheaply, the risk of security and stability of supply is critical. This is reflective of Stage 2 'Do new things in new ways'. Value is being created from sustainability by managing risk and natural resource efficiencies. There is limited value being created in new sources of revenue and growth as Mondeléz develop a healthy eating range which is associated with the wellbeing of their consumers.

Network Structure

Mondeléz is interesting in how it orientates its supply chains networks as its positioning depends on its concept of materiality and strategic focus (Figure 4.4). It is eco-centric in terms of its materiality focus and areas that have high impact on the business, such as cocoa and palm oil, and in terms of other less critical commodities, it is ego-centric. This can be seen by its levels of position of centrality and power to impose on stakeholders to orientate them towards their strategic agenda.

> *"The four areas of action define our concept of materiality for social and environmental purposes. Since 2012, we have sat down with internal and external experts to review the impact of major societal issues on our business, and to shape our strategic responses to them"* (Mondeléz International, 2016:43)

This quote is consistent with the intercontextuality of previous sustainability reports to manage stakeholders in the interest of controlling sustainability impacts on the business and its business culture of profitable growth. The company positions itself differently in each of its supply chain networks depending on the degree to which it prioritises sustainability within a particular supply chain and the level of control it requires.

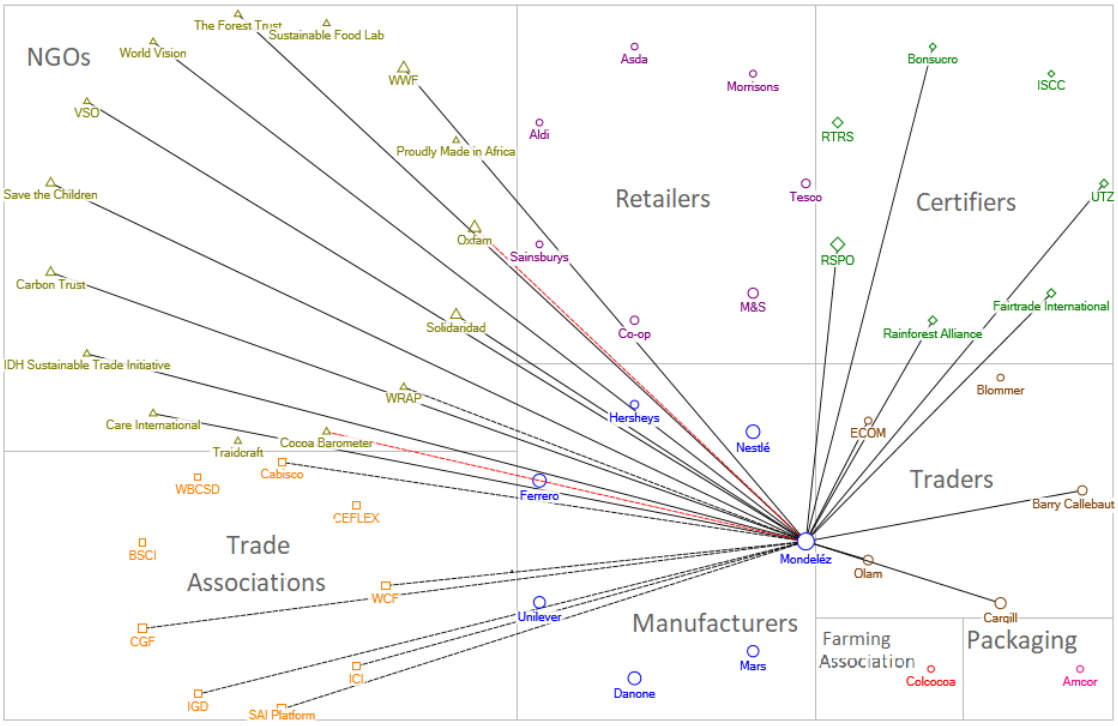


Figure 4.4: Mondeléz's Chocolate Supply Chain Network Relationships

Within cocoa, the company is highly centralised within its own direct supply chain as it is a major and visible ingredient. Its Eigenvector centrality of 0.031 gives it a high level of influence across its network. It is eco-centric in considering the needs of farmers to ensure stability and security of supply. Therefore, the farmers are a means to an end:

> *"Without cocoa, there is no chocolate. Without the next cocoa farming generation, there is no cocoa."* (Mondeléz International, 2017a)

There are two levels of centrality – within its own linear supply chain and across the network. At a cocoa supply chain level, the company is highly centralised working in partnership with governments, NGOs, commercial partners, farming organisations, and farming communities. In order to achieve impact, there is evidence of high levels of management, resource fitness and commitment. There is evidence of the company using its centrality position to change business practices. Initial impact evaluation on the 76,700 farmers in 795 communities across the six countries shows a 49% income increase and 37% yield increase to similar control communities. This is limited to environmental and social improvements for farmers, farming communities and the landscape. The income increase is due to improved yields rather than equitable value distribution.

At a cocoa network level, Mondeléz ensures it is centrally located on industry platforms such as the ICI and the WCF. This allows it to be instrumental in influencing the

institutionalisation of sustainability principles and priorities. It is an officer and sits on the Board of Directors of the WCF, which designed the *CocoaAction* strategy to ensure sectoral alignment among trading and manufacturing focal companies. Mondeléz is also participative across industry platforms that produce and institutionalise practices such as Innovation Forum's *Sustainability for Smallholders* event. This level of centrality is seen in other materiality areas such as packaging waste and its engagement with IGD and WRAP.

Style of Practice

A transformative process of change is happening across the company as strategic values and goals are permeating throughout the whole company culture, changing mindsets and the business model due to deeper TBL integration. However, there is a disconnect between corporate strategy and the day-to-day environment in which managers operate. Tension is evident at the altitudinal interface between the dominant parent company with an American business culture and values in delivering shareholder value and the acquired UK company, Cadbury, with a strong heritage in family and social values.

Respondents reported a tension under the traditional ego-centric business model due to structural integration limits. The business model is based on values of how fast the company can realise the margin opportunity and do that while continuing to drive growth. As such, business activities are operating in a management mode of KPI's and job descriptions that reduces costs, often restricting sustainability activity. Restrictions and challenges are reported within both supplier and customer relationships placing restraints on the level of sustainability and how it is embedded. For example, a buyer's priority is procuring commodities as cheap as possible and sustainability is perceived as a distraction. For the customer relations team, there is also the challenge of embedding sustainability in their standard business tasks. In this instance where sustainability is not as developed as the supply end, there is still a massive opportunity to drive the sustainability agenda. However, as a respondent explained, this is limited because their customers' business model is "*solely in the lean*" meaning they do not have the time or staff levels required to drive these initiatives. Fundamentally, these are commercial relationships of which sustainability is perceived as an add-on to getting the job done. This is evident in its business model and management component that favours more traditional SCM links and practices (Table 4.5). This finding demonstrates the relationship between sustainability orientation favouring more ego-centric practices in its style of management.

Table 4.5: Summary of Mondeléz's Structural & Relational Links used to Implement Processes

Focus of links	***Structural links***	***Level of activity***	***Relational links***	***Level of activity***
SCM	Planning	High	Management methods	High
	Control methods	High	Power & Leadership	High
	Workflow structure	Med	Risk & reward	High
	Organisational structure	Med	Culture & attitude	Med
	Communication structure	Med	Trust & commitment	Med
	Knowledge management	Med	Cooperation	Med
SSCM	Resource fitness	Med	Shared values	Low
	Transparency & traceability	Low	Visionary	Med
	Resilience	Med	Innovative	Med
	Continuous improvement	Med	Long-term focus	Med
	Holistic coordination	Med	Accountable	Low
	Understand impact	High	Adaptive/ flexible	Med
	Technological	High	Reflective	Low
	Mergers & acquisitions	High		
	Degree of embeddedness	76%		67%
	Focus of Links	SCM		SCM

4.4.3. Sub-case Study: Unilever

Organisational Orientation

Structure - Unilever is a publicly listed European consumer goods MNC manufacturer traded to deliver long-term sustainable shareholder value. When Paul Polman took over as CEO in 2009, he ended quarterly profit reporting in a radical step to change value-creation to a more sustainable, long-term agenda. The formal organisational structure is a matrix in which the formal strategic mechanisms are centralised and hierarchical. Its product type divisions are more significant than its geographical divisions. This is because the diverse product types are configured to support innovation. The corporate executive is a mix between business functions and product types. The board convened a corporate responsibility committee with three non-executive directors charged with ensuring Unilever's corporate responsibility. There are a clear governance structure and lines of accountability. The *Sustainable Living Plan* steering team supports the leadership executive, reporting directly to Chief Marketing & Communications Officer, who reports to the CEO and corporate responsibility committee.

Strategy - Unilever's strategy is to configure the company for sustainable and responsible growth. It is committed to making "*sustainable living commonplace*" (Unilever, 2017b). It creates value through innovation, continuous improvement, market development, and

talent recruitment and retention. The strategy is based on a clear business case for the company's accountability and response to macroeconomic, planetary boundaries and human rights issues.

> *"We believe that business must be part of the solution. But to be so, business will have to change; there is no 'business as usual anymore'. Sustainable, equitable growth is the only acceptable business model. Our strategic vision is to grow our business whilst decoupling our environmental footprint from our growth and increasing our positive social impact."* (Unilever, 2017b)

There is a high level of obligatory interdiscursivity where there is a consistency of sustainable and responsible discourse across all textual platforms and publications. This creates an intertextual chain emphasizing the significance of sustainability for Unilever. This discourse is invoked through a highly transparent structure, culture and system and across the company's high-volume of publicly available texts. It is also replicated and publicised across external publications, such as industry reports and media platforms.

Culture - Unilever's corporate culture is consistent with its strategic ambitions. The company values an attitude of integrity, commitment, aspiration, collaboration and having a positive impact. This strong aspirational attitude was evident in the interview with a sustainability director during which there was a strong sense of self-reflection, accountability and ambition to improve. These principles by which the company orientates itself manifest consistently across all primary and secondary data. This culture characterises management practices, routines and its ability to operationalise strategy companywide. Therefore, its corporate culture imposes a powerful influence on practice.

Sustainability Principles and Priorities - Unilever is considered an industry leader in sustainability. It was the most commonly cited among respondents as an exemplar of best practice. It follows a policy of 'no trade-offs' between business growth and sustainability, with sustainability brands reportedly growing 50% faster than other product categories. Sustainability is not just an integrated strategic goal, it is also fully embedded into its sustainable business model and value proposition for sustainable growth. It places stakeholder value at the centre of its approach, going beyond stakeholder engagement to extensive partnerships with multiple stakeholders for systemic change.

Its sustainability agenda is visionary rather than prioritised to manage risk. It takes account not only for its role and impact as a MNC but also how value is created along the supply chain.

> *"We are committed to a full value chain approach to reducing environmental impact – as this most meaningfully reflects the true impact of our business."* CEO, Paul Polman (Unilever, 2015)

Between 2008 – 2010, it mapped the lifecycle of 1,400 representative products (of an estimated 30,000) and combined it with data from its 14 most important markets to assess sustainability and stakeholder impacts. This materiality approach identifies priority issues for both the business and stakeholders, which is published and reviewed every two years. As the business is seeking to effect impact not only within its own value chain but also systemically, the CEO and former UN Deputy Secretary-General created the *Business & Sustainable Development Commission* as an evidence-based business forum to systematically address the SDGs (Unilever, 2018).

Business Model – The CEO, promotes its responsible business model as "*equitable, which is shared, which is sustainable"* and, as such, has become synonymous with ethical business practices (Skapinker & Daneshkhu, 2016). Sustainability is fully embedded rather than integrated into the business model. Value creation is defined as financial, social, natural intellectual, human and brand capital. The company has developed four sustainability criteria to capture value including driving growth, lowering cost, reducing risk and building trust. Therefore, being fully eco-centric in its orientation, it is at Stage 4: 'New business model creation and differentiation' of value creation. In its strategy to deliver collaborative advantage, Unilever fully considers the needs of its stakeholders.

<u>Network Structure</u>

Unilever is highly active across its networks, frequently cited as a leader for systemic change (Figure 4.5). It utilises its network to orientate business activities and practices across the F&B sector towards an eco-centric orientation. There is a high level of sectoral pre-competitive activity, driving stakeholders towards concurrence and systemic change. The company leverages its role as a leader to encourage changes in behaviour within its own supply chains and across the sector,

> *"We're collaborating with others in four areas where we've identified we can use our scale and influence to bring about change to whole systems."* (Unilever, 2017a)

However, in response to this one retail respondent commented,

> *"They do really good stuff but they're a pain to work with because they always think that their way is the best way."*

This text is consistent with how the company leverages its scale to influence the system. To do so it instigated a high level of supply chain and sectoral initiatives across many commodities and thematic areas, particularly higher-level Discourses for driving transformational systems change through advocacy and partnership, such as setting-up SAI Platform and it's work with the UN on the SDGs and Paris Agreement on Climate Change.

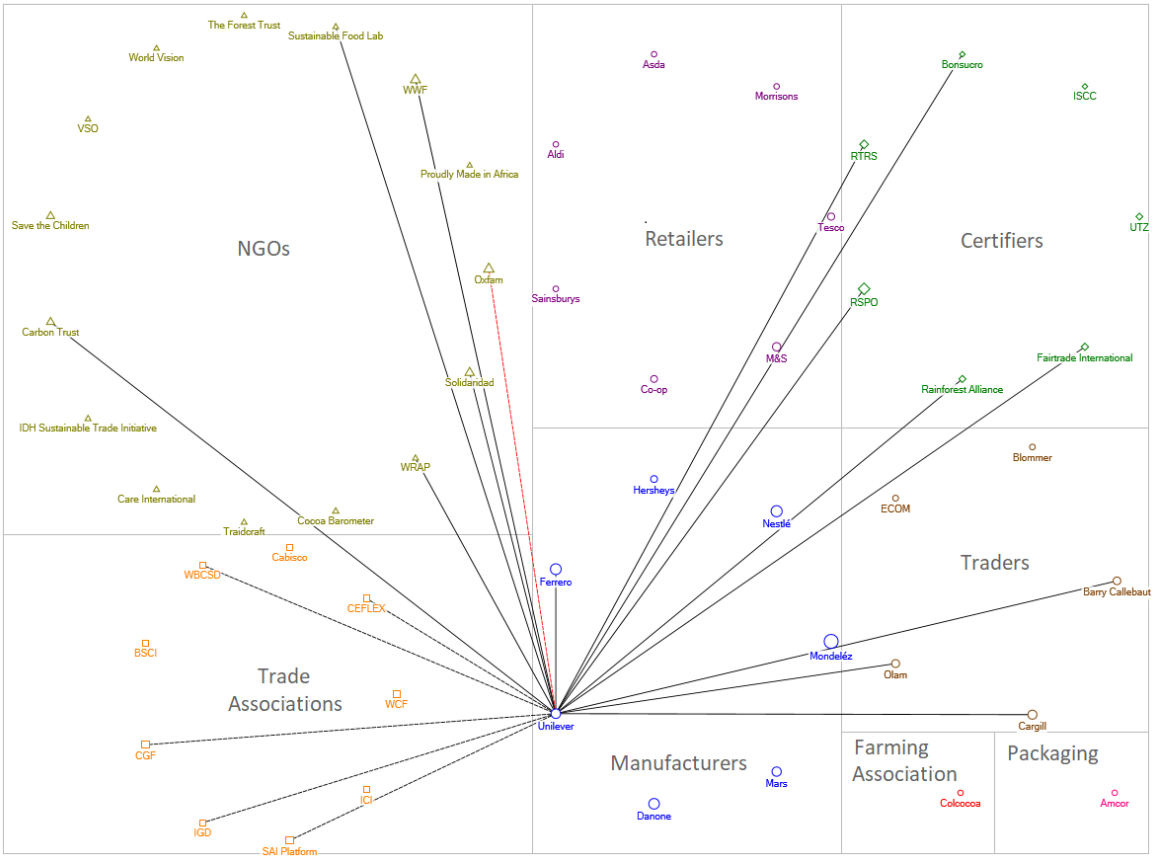


Figure 4.5: Unilever's Chocolate Supply Chain Network Relationships

Cocoa is not a primary commodity, embedded in its brand value, as it is with Mars or Mondeléz. However, it is a vital ingredient, purchasing approximately 1% of global production. It does not position itself centrally within the cocoa supply chain network; however, it supports industry initiatives such as 100% sustainable certification targets and a signatory of the Cocoa and Forests Initiative – a pre-competitive 'statement of intent'. The strategic importance of cocoa is evident in how it embeds itself in the network. It is not a member of the WCF or IFI but supports their activities.

Analysis of alternative networks, such as strategically more important commodities or thematic issues, reveals how Unilever leverages the density, instigating a higher level of links, to institutionalise principles, processes and practices. The company is highly

centralised across broader networks focusing on systems-level thinking on big issues and advocating mainstreaming sustainability, collective action and systemic change. There is a high level of collaborative and concurrent activities both within its supply chains and across its networks. It lists 21 trade associations it is affiliated with to advance these interests. Its Eigenvector centrality of 0.026 gives it a high level of influence across its networks. This figure is lower than its leading confectionary counterparts as cocoa is not as strategically important. However, it is highly centralised compared to other focal companies across broader systemic networks. Furthermore, the scope of sustainability across its supply chains is so fully embedded that the arc of integration is broad; outward facing, concerted across the supply chain and deeply integrated organisationally within business functions.

Style of Practice

Unilever is at the vanguard of the sustainable business movement for transformative business models and systemic change. The company exemplifies sustainability practices, innovating structural and relational links (Table 4.6). For example, the company has used its acquisition of Ben & Jerry's to forge new business practices. Since it was acquired, Unilever has developed its relationship with B Lab to explore the barriers to MNCs engaging in the B Corp movement.

Table 4.6: Summary of Unilever's Structural & Relational Links used to Implement Processes

Focus of links	***Structural links***	***Level of activity***	***Relational links***	***Level of activity***
SCM	Planning	High	Management methods	High
	Control methods	High	Power & Leadership	High
	Workflow structure	High	Risk & reward	High
	Organisational structure	Med	Culture & attitude	High
	Communication structure	Med	Trust & commitment	High
	Knowledge management	High	Cooperation	High
SSCM	Resource fitness	High	Shared values	Med
	Transparency & traceability	High	Visionary	High
	Resilience	Med	Innovative	High
	Continuous improvement	Med	Long-term focus	High
	Holistic coordination	High	Accountable	High
	Understand impact	High	Adaptive/ flexible	Med
	Technological	High	Reflective	High
	Mergers & acquisitions	High		
	Degree of embeddedness	90%		95%
	Focus of Links	SSCM		SCM

It modernised its workflow structure using LCA, materiality assessment and management. In mapping its value stream, an increased appreciation of sustainability and stakeholder importance arose, which in turn influenced its business model and business

case for where sustainability activity should take place. It was innovative in pre-competitive collaboration with several examples of leadership in setting-up initiatives such as SAI Platform with Nestlé and Danone in 2002. It leads the way in accountability, transparency and ethicacy, being a first mover in publishing standards, policies codes, assessments, activities reflecting the coherence of its organisational orientation, and the structural and relational links required to manage its sustainable supply chain effectively.

4.4.4. Sub-case Study: Mars

Organisational Orientation

Structure – Mars Inc. is an American family-owned MNC manufacturing confectionery, food, drinks and pet food, operating over 100 years, since 1911. Complimenting this is the symbioscience category dedicated to the scientific advancement of its categories, such as cocoa production. As the third largest privately-owned American company (behind Cargill and Koch Industries), access to company information is limited, as the company is secretive and insular. Historically the website was not transparent and difficult to navigate. Since 2016, reporting has become more transparent, with a brief reference to company structure in its *Principles in Action Summary 2016* report (Mars, 2016b). These efforts have been recognised by the watchdog Oxfam who has observed their increased transparency between 2013 and 2016 (Oxfam, 2017b). The formal organisational structure intuited from the allocation of roles on the executive team indicates a matrix type structure. The executive functions are a mix between business functions and product type divisions. All positions are global, with no geographical references. It's board of directors is not publicised, though regulatory filing for the State of Delaware lists six family members.

Strategy – Mars is focused on its continued long-term endurance and growth that remains family-owned. It is reported to have an aversion to the caprices of shareholder and quarterly financial reporting (Kaplan, 2017). Beyond this limited information, there is very little data to indicate its strategic orientation. However, in recent years, the company has undergone a strategic change in response to global megatrends. Under the leadership of the most recent CEO, Grant F. Reid, the business is transforming to become a sustainable business. Mr Reid has been publicly vocal about the need for this step-change.

Culture – The company has a strong culture, based on its *Five Principles* of quality,

responsibility, mutuality, efficiency and freedom. These principles as social practices are consistent across all genres of company text production both in primary and secondary data. They are also performative in representing and reinforcing identity and ideological social practice. This text is highly publicised and integrated across all publicly available sources, giving it greater social meaning and value juxtaposed against a stark and barren corporate strategy, structure and systems representative of its culture of secrecy. Therefore, any statements made by the company, or its representatives, portray greater gravitas for the sheer scarcity. However, it appears the culture is not fully aligned with the step-change in the business model. To clarify, transparency is cited as an overarching policy, yet the company does not exhibit the same level as Unilever, M&S and the Co-operative. Policies are transparent, but systems and assessments are not.

Sustainability Principles and Priorities – Sustainability is becoming increasingly embedded into the organisational orientation. The priorities are guided by scientific data, its corporate principles and consideration of stakeholder needs. Mar's is aware of its stakeholders' economic sustainability needs and the company's economic impacts and responsibility in value distribution along its supply chains. The company is being ethically reflective regards how it can do "*what is right rather than just doing better*", Chief of Sustainability and Health & Wellbeing Officer (Mars, 2016a). The company uses Oxfam's 'Doughnut' model for social and planetary boundaries to determine activities (Oxfam, 2017a). It has identified three strategic thematic goals including a healthy planet, thriving people and nourishing wellbeing across five impact areas – land use, GHG emissions, water use, income and human rights. These principles and actions are representative of the company's ambition to be a leader in sustainability. Mars has strategically focused on the material issues that affect the organisation's sustainability performance. It has mapped 70% of raw materials supply chains and set priorities on more than 700 materials.

Cocoa is a key ingredient and, as such, Mars has committed to souring 100% sustainable cocoa by 2020. It has also moved beyond certification, investing over £21 million in supply chain initiatives such as the *Cocoa Genome Project, Livelihoods 3F Fund* and the *Sustainable Cocoa Initiative*. It is the only major manufacturer to work with all three major certification organisations on cocoa.

Business Model – Mars is evolving and reorienting its business model. To do so it has set the target to become "*sustainable in a generation*" and is taking a new approach to doing

so. This model is orientated by a principles-based approach to business. The company has reappraised its value chain to create sustainable value for both the business, people and planet. This is transforming its business model and how value is created:

> *"Business needs to look beyond our own operations to transform the entire value chain to address the scale of environmental and social challenges that exist within."* Grant F. Reid, CEO (Mars, 2017b)

It is currently in Stage 3: 'Transform core business' as its vision expands, the needs of its stakeholders are taken into greater consideration. However, there is evidence that this is changing as it appears to be aspiring to Stage 4.

Network Structure

Mars has had strong roots in Europe, especially the UK since 1932. As such, it utilises both American and European networks, such as its centrality to trade associations and NGOs – similar to Mondeléz and dissimilar to Hershey's. There is evidence that as sustainability becomes more embedded into its business model Mars is taking an approach similar to Unilever. It is beginning to use its scale as an MNC to drive systemic change. It has increased its collaborations with governments, regulators and NGOs, particularly regards certification, GHG emissions, and human rights. Its rhetoric in being a sustainable business leader has become stronger, promoting its efforts with a clear *call to action* message across all texts. There is a clear style of phrases that represent the attributes necessary to position itself as a sustainability leader. Phrases reference participation, leadership, accountability, responsibility, consideration of stakeholder needs, collaboration and concurrence – all indicative of an optimal sustainability style of practice. However, there is also limited evidence of dictatorial behaviour in that it is attempting to control stakeholder behaviour to align with its own principles.

Mars has systematically utilised its position of power initially within its own supply chains, especially cocoa, to develop partnerships that improve sustainability impact. Having matured this approach, it has broadened in its scope to systemic sectoral change, as sustainability has become more strategically embedded and advantageous. Subsequently, there is a high level of pre-competitive centralisation across both commodity and thematic industry and NGO collaborations. As such, Mars' networks are some of the most comprehensively centralised and dense (Figure 4.6). Mars utilises links to increase density and form normative principles and priorities. It strategically focuses on non-commercial

partnerships with NGOs and certification organisations. To a lesser extent, Mars has developed three strategic commercial partnerships – with Danone in the *Livelihoods Fund*, and a *Memorandum of Understanding* and 17 *Cocoa Development Centres* in the Côte d'Ivoire with Barry Callebaut and ECOM. The significant focus of engagement with competitive commercial partners, such as retailers and other manufacturers, is formed through pre-competitive trade association initiatives.

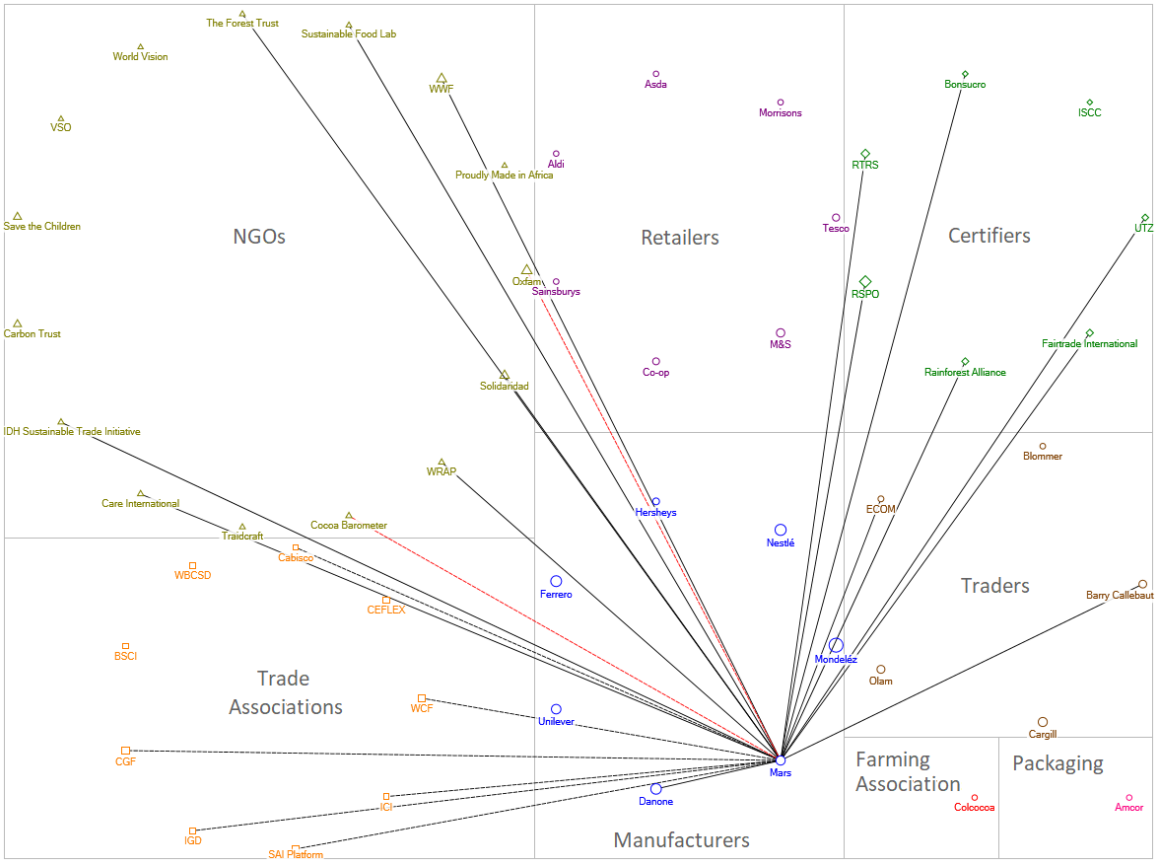


Figure 4.6: Mar's Chocolate Supply Chain Network Relationships

Style of Practice

As with Mondeléz, a transformative process of change is happening across the company, however, its approach is different. The company culture is already strong, permeating all levels of organisation and the foundation of behaviour.

> *"To be honest, for any business sustainability should be easiest for us and maybe the Co-op because they've got PRIDE as their key principles. Any business with strong values, it should be easier for you. If you look at our five principles: Quality, Efficiency, Mutuality, Responsibility and Freedom – they all talk individually and as a set to sustainability."* (Sustainability Director)

What is changing is the strategy and the business model. For the company, sustainability is an additional metric to quality and how value is delivered, based on its core principles. There is also a *heritage* aspect, which is not as evident in other companies; the rhetoric suggests strong values inherent in the founding father's ideological business sense. What is changing is the scope of stakeholders to include the planet and the business model by which decisions are made. Under the traditional economic paradigm, decisions were based on management of money as a scarce resource. Of late Mars is altering its 'resource scarcity' perspective in its simplest possible way to adapt to and manage other scarce resources. As such, sustainability is being embedded in the business model:

> *"If you've got a pen, write down the words SUSTAINABILITY. Underneath that write down this sentence: SAY IT AS BUILT IN. That's an anagram. It's only going to work when you say it is built in, when it is what you do every day."* (Sustainability Director)

Therefore, in practice sustainability relational and structural links are highly rated, but it appears that Mars has a greater capacity for relational links than structural ones (Table 4.7). An explanation for this can be understood by the structure of the company – six distinct product divisions, referred to as flotillas, that make 'command and control' and a holistic coordination challenging as they have got different priorities. This siloed effect makes reporting and communication difficult as the proxies for what to measure. However, it does have strengths structurally, especially where they integrate with relational links. Internally, it is reported that it displays financials to motivate employees whose bonuses benefit from performance (Kaplan, 2017). This behaviour illustrates the high level of trust the company places in its employees to be loyal. Also, it is changing its practice to become more transparent and traceable across its supply chain, such as its efforts in GHG emissions.

The organisation is stakeholder orientated, highly valuing its workforce. They are referred to as *Martians* or *Associates*, and there is a strong sense of identity and loyalty. It is recognised by Fortune magazine's 100 best companies to work for. The company encourages knowledge management, innovation, communication, openness and honesty. innovation, learning and knowledge exchange among its workforce. It also values collaboration, with external relationships, particularly partnerships with shared values.

Table 4.7: Summary of Mar's Structural & Relational Links used to Implement Processes

Focus of links	***Structural links***	***Level of activity***	***Relational links***	***Level of activity***
SCM	Planning	High	Management methods	High
	Control methods	Med	Power & Leadership	High
	Workflow structure	Med	Risk & reward	High
	Organisational structure	Med	Culture & attitude	High
	Communication structure	Med	Trust & commitment	High
	Knowledge management	High	Cooperation	High
SSCM	Resource fitness	High	Shared values	Med
	Transparency & traceability	Med	Visionary	High
	Resilience	High	Innovative	High
	Continuous improvement	High	Long-term focus	High
	Holistic coordination	Med	Accountable	High
	Understand impact	High	Adaptive/ flexible	Med
	Technological	High	Reflective	High
	Mergers & acquisitions	Med		
	Degree of embeddedness	83%		95%
	Focus of Links	SSCM		SCM

4.4.5. Sub-case Study: Danone

Organisational Orientation

Structure – Danone is a European publicly listed manufacturing MNC, in which the founding family retains majority shares out of its 74 shareholders. It delivers shareholder value through its strategic priorities of consolidating globalised market share in product categories and enhancing profitability. The company was founded in Barcelona in 1919 by Spanish and French men who eventually moved it to Paris and today has over half its business outside Western Europe. The company's executive committee – six-strong – is small and dynamic, with a cross-over of duties including two business functions and three product type divisions leaders. Its board of directors is sixteen-strong and organised between the various company bodies and external experts. It manufactures food products across three lines of business – fresh dairy, beverages and biscuits – with medical nutrition an additional division. It has been cautious and focused on its global expansion into a limited number of countries selected for growth and economies of scale to maintain its category leadership position (Spulber, 2007). The company has undergone a transition of structurally reconfiguration to deliver shareholder value under its new strategic objectives. In order to do so, the structure was decentralised in 2016, with localised business units that are grouped into 30 geographic clusters.

Strategy – Under new leadership, Danone's strategic goals and value creation model is changing. This is encapsulated in its 2020 strategy to capture a collaborative, agile and resilient growth model. The company now defines value through promoting its leadership position in healthy food. Aligned with this are four characteristics of healthy food practices and products, a global presence and profitable, sustainable growth. Therefore, it's newly configured business model can be considered sustainable.

Culture – The rhetoric to support this reorientation is emphasising existing values – social progress and alimentation while expanding its vocabulary to capture the sustainability zeitgeist. Culturally, Danone has instituted its *Danone Way* of doing business to promote social responsibility. It has been a core principle of the company since Antonie Riboud defined the business CSR approach in 1972. Since then, the company culture has stressed the social progress. This myth is aligned with that of *alimentation*; the concept of healthy, sustainable food and drinking habits. Both are highly integrated into the corporate brand value, promoting itself as a leader in revolutionising food practices along the supply chain for systemic change. Values of shared responsibility, the balance of power between stakeholders, transparency and social governance are emphasised.

Sustainability Principles and Priorities – Danone's sustainability principles have a strong social focus given its heritage. However, it ranks low on Oxfam's *scorecard*, particularly for women, farmers and workers wellbeing. The principles by which it aspires to operate include holistic thinking and coordination, localised diversity, pragmatism and continuous improvement, and collaboration. However, on closer examination there is a disconnect between strategic, corporate and promotional material and operational practices. The respondent explained that there was siloed thinking and poor communication among business functions and divisions that has inhibited collaboration:

> *"Danone really prides itself in the history of the company in the speech of a previous CEO, Antoine Riboud. He said, in 1972, that there's a dual contract at the core of Danone. At the core of business, you need to have an economic impact and you need to have a social impact, and you cannot have one without the other… So, that's part of the real genesis of Danone. I think that Danone over the years has something based for once on social impact in particular but it's been somewhat siloed and separated from the rest of the business. We are doing amazing stuff, you know, but not on the side of the normal business."* (Marketing Director)

Emphasis is on its consumer-facing product portfolio and consumer health with branded value captured in *better lives*, *better health* and a *better world*. In order to do so, the

company states that it has developed its capabilities to be collaborative, co-create and considerate of stakeholders' needs. To focus its priorities, Danone has targeted stakeholders and carried out a materiality matrix on significant environmental impacts. It has also provided guidelines and policy papers on management methods to support this, such as change management, co-creation and partnership. However, it has provided scant information regards the scope of raw materials or products this assessment was carried out on. It is also limited in assessing sustainability impact as it focuses only on environmental issues. There is also little evidence or transparency, beyond policies, to substantiate these claims. It is beginning to rectify these issues with policies and public commitments, such as signees to conventions and statements by CEO, Emmanuel Faber.

Regards its supply chain activities, Danone has focused on sustainable agriculture, waste and strengthening its strategic resources – milk, water and plastic. It has set four targets including nature, wellbeing, social and economic components. This requires securing supply in a sustainable way, protect the competitiveness of its strategic resources, and build a circular economy. Cocoa is listed alongside vanilla, sugar and palm oil that the company is strategically focused on addressing sustainability issues in, especially farming as part of holistic approach to a sustainable ecosystem. For example, one of its B-Corp subsidiaries sources 100% sustainable cocoa. However, again information is limited, with little insights into its impact.

Business Model – Danone is re-orientating towards a sustainable business model – "*to remain competitive and continue operating in the years ahead*" BNP Paribas investment partners, Head of Sustainability Research (Danone, 2017). It defines sustainable in this context as 'consistent growth'. Currently, it is creating value in its business model by replicating Stage 2: 'Do new things in new ways'. However, it seeks to make the radical transformation to Stage 4 and to do so by generating social and economic value. It has sought to create value for all its stakeholders, particularly in the context of social and economic value creation. It has created a brand identity around the new CEO, Emmanuel Faber's notion of '*alimentation*'. This was not clearly understood initially within the company but has become much clearer in its message since 2016.

> *"Faber has defined the role of the Danone to be alimentation which is actually a French word, but it does exist in English. The idea of alimentation, it's not just food, it's food and it's feeding. It's not just the physical act of feeding but the symbolic act of feeding – what food represents for culture, for local community, for the*

> *planet, etc. And in doing that he's put sustainability at the very, very heart of the business."* (Marketing Director)

Since this interview, a year previous to writing this thesis, the branded language, intertextuality and message has become clearer and more embedded across platforms. It is now about sustainable food practices, of which Danone is positioning itself as leader and champion of.

The company is becoming more eco-centric; its goal is a circular economy and to become a B Corp company. As such, the organisational orientation is undergoing systemic change, as explained by the respondent,

> *"The change really came from the guy at the top [Emmanuel Faber] putting sustainability at the actual core of the business and making a big commitment behind it. The minute you do that you can't work in increments anymore… That's not going to step-change your sustainability. So, once you've done that it gives you permission and mandate and obligation to totally change the way you look at the problem and to be broad and ambitious and innovative and to put also a lot of resources - people-wise, behind the topic as well… Now, the pull of the organisation is enormous, in terms of speed of change, trying to figure out how we push sustainability and social impact and still maintain super high gross, high profitable gross. It's very tough. I wouldn't say its impossible equation… Everybody welcomes the change. In practice it's not so easy to implement because it's more like a revolution then it is like an evolution."* (Marketing Director)

To reach this target, it is increasing its collaborative activities, partnering with NGOs and academic institutions, and forming alliances with strategic partners and within trade associations. In terms of its business model, it extends this concept to co-creation, open source and mutual benefit in innovating its business model and practices. This approach also seeks pragmatism in tackling complexity and scale for continuous improvement.

Network Structure

Danone does not appear to strategically use its sectoral networks to the extent that the other sub-cases have. Cocoa is not a critical commodity, so it has not placed itself in a central position in the cocoa supply chain network nor has it developed links (Figure 4.7). It is not monitored by the Cocoa Barometer because it is not a significant network actor in cocoa. It is not linked with the WCF or ICI, consistent with cocoa not being a strategically significant commodity. It is linked with systemic initiatives such as a founder of SAI Platform and on the board of CGF.

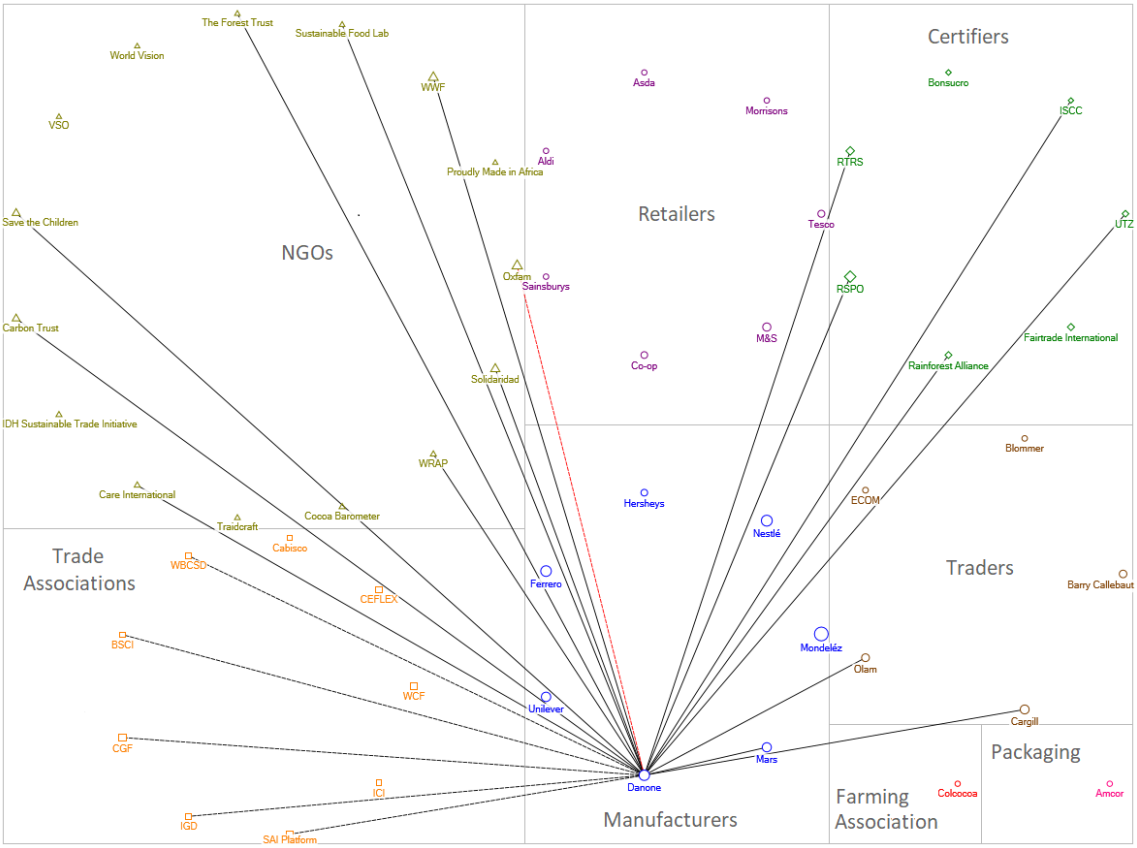


Figure 4.7: Danone's Chocolate Supply Chain Network Relationships

It favours co-creation and partnership to deliver value in its management model, but the majority of these activities appear to be collaborative partnerships rather than pre-competitive alliances. Its partnerships are determined by strategic goals. There is evidence of a high level of links with collaborative partnerships in strategically significant impact areas with high resource investment, such as its *Down to Earth* programme initiatives, i.e. *Danone Communities, Danone Ecosystem Fund*, and the *Livelihoods Fund*. Therefore, the assumption can be made that this business strategy and orientation model favours collaborative advantages within its directly controlled supply chains rather than broader, systemic networks across the food and beverage sector.

This is not to say that concurrence and collective action are not significant. In fact, Danone is innovative in establishing industry alliances, such as SAI Platform with Unilever and Nestlé, and the *Livelihoods Fund* with Mars. It utilises its central position in dense network initiatives, such as the CGF where Emmanuel Faber is on the board of directors and was a keynote speaker at the 2017 conference promoting systemic change in the F&B sector. In this speech, he repeatedly used keywords to drive Danone's brand value and collaborative advantage as leaders in changing food practices. An interesting observation

is that this speech was in June 2017. However, when the respondent was interviewed in October 2016 there was a discussion about Danone's capacity to position itself as a leader in the sector and market since sustainability became embedded in the business model. The respondent made the following comment:

> *"I don't think Danone sees itself that way. Like I don't think in Danone we are having a debate, or not enough of a debate, on you know being a brand of the future means being a leader."* (Marketing Director)

This illustrates the speed of change that sustainability is creating across the organisation and how Danone is strategically positioning itself as a leader, using its network leverages to do so.

Style of Practice

Danone, like Unilever and Mars, is a value-based company. Therefore, its culture is highly significant in its organisational orientation. This culture has always been defined by its company leaders - CEOs and Chairmen, who have been champions of its economic and social principles. Under its current leadership, the company is undergoing significant and rapid organisational re-orientation that is impacting structure, strategy, culture and practices. This can be seen in the management methods used and how they are being applied in its dynamic environment of organisational change (Table 4.8).

Structurally, the company has significantly changed its planning, control methods, workflow structure and organisational structure. However, communication remains a huge challenge affecting embedding sustainability. The respondent, speaking from the perspective of marketing, explained that the organisation is closed, siloed and had a poor communication structure. This resulted in a disconnect between marketing and supply chain functions with difficulty in identifying the relevant personnel to share information and knowledge, and potentially cooperate.

As part of its re-orientation strategy, the company announced its strategic acquisition of WhiteWave to create stronger market positioning and for it to be disruptive in the existing business model, helping change the business model, management model and practices. These values are translating into an organisational orientation that is values-led, with an emphasis on people-led practices.

Relational practices are being tightly interwoven into the branded text of the organisational identity. However, there appears to be a disconnect between corporate

strategy and operational practices. This is because there is a duality of structural and relational norms in effect between the old and the new economic paradigms, creating difficulties for managers to apply the new values in practice. There is strong leadership and power from the CEO with the mandate to create such radical transformation internally. Furthermore, this drive comes from his significantly personal values, faith and integrity. However, externally there has been less of a presence as an industry leader. This is changing as the CEO takes a more outspoken and centralised role on global platforms as the company articulates its new sustainability story and seeks an industry change in mindset.

Table 4.8: Summary of Danone's Structural & Relational Links used to Implement Processes

Focus of links	***Structural links***	***Level of activity***	***Relational links***	***Level of activity***
SCM	Planning	Med	Management methods	Med
	Control methods	Med	Power & Leadership	High
	Workflow structure	Med	Risk & reward	Low
	Organisational structure	High	Culture & attitude	High
	Communication structure	Low	Trust & commitment	Med
	Knowledge management	Low	Cooperation	Med
SSCM	Resource fitness	High	Shared values	Low
	Transparency & traceability	Med	Visionary	High
	Resilience	Low	Innovative	High
	Continuous improvement	High	Long-term focus	High
	Holistic coordination	Low	Accountable	Low
	Understand impact	Med	Adaptive/ flexible	High
	Technological	Med	Reflective	Low
	Mergers & acquisitions	High		
	Degree of embeddedness	67%		76%
	Focus of Links	SSCM		SCM

4.4.6. Sub-case Study: Tesco

Organisational Orientation

Structure – Tesco Plc. is an English publicly listed grocery and general merchandise retailer MNC. It is configured to deliver value to its 117 shareholders, listed as hedge fund and activist investors looking for short-term profits. In 2015 it underwent a significant restructure of the board, with the appointment of a new CEO, Dave Lewis (who came from Unilever) and CFO, Alan Stewart (who came from M&S). This restructuring was a result of poor financial performance and a loss of confidence by shareholders and consumers. As such, there has been a radical review of its governance and corporate responsibility

mechanisms to rebuild trust, as indicative of hiring the two highest-ranking executives from companies with a high reputation in this area. Its structure is highly hierarchical and noted for its multiple layers of management that is considered bureaucratic. Therefore, strategic mechanisms are centralised through head office functions. Business functions are significant on the executive team, with a lesser representation of geographical divisions – namely, UK & IRL, Central Europe, and Asia. The sustainability director reports to the corporate responsibility committee, which is one of five executive committees that report to the board.

Strategy – Its strategy is configured towards cost leadership to deliver value to customers on availability, range and customer service that by extension delivers sustainable shareholder value. Since 2014, it has had the strategic agenda to regain competitiveness, strengthen profits and rebuild trust and transparency. It aims to be profitable and sustainable as a business, and in doing so is transforming processes. It has restructured and divested business interests and exited the Japanese and American markets. It is also rebuilding trust and transparency, of which its supply chain functions such as supplier and customer management. Tesco's is developing its supply chains responsibly and sustainably, with significant public commitments to endorse this, such as becoming signatories of the UNGC and joining trade initiatives such as SAI Platform.

Culture – Tesco's has had a rebranding of its values as part of its strategic reorientation in line with its new mission statement. The first two values of "*no one tries harder for customers*" and "*we treated people how they want to be treated*" remain the same. However, now instead of "*We use our scale for good*", they assert "*Every little help makes a big difference*", as part of the company's efforts to rebuild trust and respect with customers by delivering value to them. At a practice level, these principles seem to be echoed by employees. A respondent explained how the appointment of Dave Lewis as CEO had an impact on changing the company culture:

> *"I think that Dave Lewis's taking over as CEO has definitely had an impact on culture. I can't really speak about what it was like before because I can only relate what other people have told me, but I think that there is a sort of changed culture and the aggressiveness on just buying things as cheaply as possible has become less severe"*

This comment was made in the context of why he was attracted to work for Tesco. Other motivators for talent attraction included the scale of impacts, key personnel with an

industry reputation and its increasing recognition for sustainability and human rights issues; all indicating a strong re-orientation towards sustainability.

Sustainability Principles and Priorities – Tesco's sustainability principles are changing since 2013. Since then it has taken a partnership approach, which is one of six strategic KPIs. As such, sustainability is broadly and simply defined as environmental and social dimensions that fall under the remit of CSR. It is also limited in employees understanding of what these principles are and TBL integration structurally, as one respondent explained:

> *"I think to some extent internally that's [principles] still not you know fully understood. People aren't conscious of that, even in the office, let alone the wider business and you can imagine the more operational side of the business! So, there's still a lot for us to do there and that would be really helpful because I guess other businesses, like M&S kind of people, a lot of customers know what their sort of policies are around this agenda, and their colleagues certainly do. Whereas internally there's not that same level of awareness. So, that always makes things a little bit harder to kind of sell if you like, you know there's not necessarily that kind of culture about responsible sourcing."* (Responsible sourcing manager)

Sustainability priorities are set through the strategic risk management framework, assessed under the three strategic goals and, therefore, extend its reporting, governance and CSR mechanisms to consider stakeholders needs. It is reported by the Ethical Consumer to have a "*rudimentary approach to stakeholder engagement*" along its supply chain (Ethical Consumer, 2017). However, it also received the best Ethical Consumer rating for SCM. Along the supply chain, the company has focused on human rights, due diligence, governance, monitoring, health, food waste, and GHG emissions. These are focused on five impact areas including climate, marine environment, rainforests, farmlands/agriculture, and freshwater bodies, which account for 80% of its environmental impacts. To increase trust and transparency, the company has begun reporting on impacts along the whole supply chain in each of these areas.

Regards its chocolate supply chain, Tesco retails branded and own-brand chocolate. Therefore, it is engaged in a number of initiatives across its supply chains. It joined the WCF in 2015 and SAI Platform in 2016 as part of its commitment to transparency and sustainability. Partnerships range from upstream agriculture, waste and manufacturing initiatives, midstream waste and distribution initiatives and downstream waste, healthy eating and community initiatives. These include over 16 partners including Barry Callebaut, UNGC, CGF, IGD, WRAP, RSPO and WCF. It has set a target for 100% responsibly sourced

cocoa by 2018 for its own-label using Rainforest Alliance certification. It also uses UTZ, Cocoa Horizons and Fairtrade in cocoa products.

Business Model – Tesco's business model exemplifies Stage 2: 'Do new things in new ways', however, it was operating under the Stage 1: 'Do old things in new ways' paradigm until 2015 when the company underwent significant reorientation. However, it still operates under the traditional economic paradigm of creating value for shareholders, though this has been extended to long-term, sustainable value. Its value proposition is to deliver value to customers. As customer's perception of its reputation and trust was damaged, it changed its business model. Sustainability has become more important, in that Tesco's is now placing greater consideration of its suppliers and is building its reputation as an ethical and responsible business.

It has undergone a radical redesign of its management systems, building robust business cases to manage risks across its supply chains and capturing value in its stakeholders to improve its reputation. Due to its economies of scale, involving the supply of thousands of products across its 6,809 stores globally, its supply chains have been a critical source of value creation. One of the reasons the company found itself in crisis was that it had a poor reputation in its treatment of suppliers due to its bargaining power. This has been a critical area in its reorientation and value creation to improve its branding and reputation. Therefore, one of its six KPIs is building trust partnerships with suppliers.

Network Structure

In the process of transformation under new management, Tesco is focusing on developing partnerships to create value, primarily shareholders, customers, suppliers, and employees. In doing so, it has developed a partnership approach with stakeholders, such as suppliers, communities, NGOs and trade associations, and supporting inter-governmental initiatives as signatories. This has extended its level of network activity, which includes the chocolate supply chain network, particularly cocoa. An interesting change in rhetoric is how Tesco's now refers to suppliers as partners. This is indicative of its strategic and operational objective of co-opting suppliers to build trusted partnerships and restore its reputation.

As a result of this reorientation, there is increased centralisation across its chocolate supply chain (Figure 4.8). It continues to take a commander-style role in responding to and controlling stakeholder pressures. It maintains a high level of control over supply chain

relationships while increasing density to facilitate information flows and its operating model, which is processed focused for efficiency. For example, Tesco's works with approximately 25 suppliers who are responsible for the majority of food supplied. With each of these, it has coordinated a responsible sourcing plan that considers the risk management of the most impactful sustainability concerns. It has changed the duration of the contract to more substantial long-term partnerships that are focused on reduced profit margins and profits from higher volumes. Tesco does not have the same level of influence over other suppliers such as big-brand manufacturers and finds this challenging. This is indicative of the lack of direct partnerships with brand manufacturers in the network, whereas it has developed a partnership with Barry Callebaut to address sustainability impacts on farmers in its own-brand supply chain. As such, commercial relationships that were transactional by contract with some level of coordination are becoming collaborative. Initiatives to control and improve information flows include the Tesco *Supplier Network*. Suppliers, employees and industry groups have access to this with webinars and training to skill-up suppliers on priorities Tesco considers important.

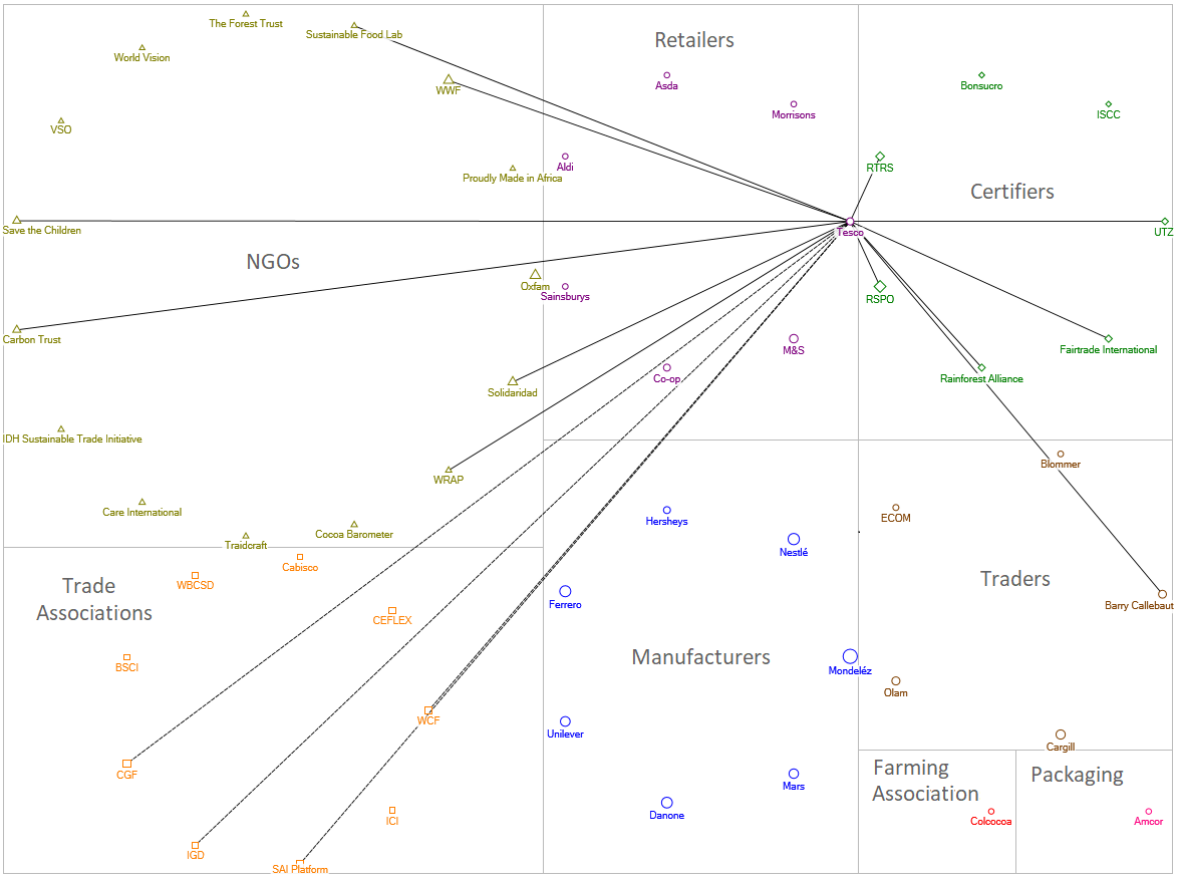


Figure 4.8: Tesco's Chocolate Supply Chain Network Relationships

Furthermore, the level of concurrent activity has increased significantly, integrating Tesco more centrally in broader systemic networks. A significant part of Tesco's strategy is to be seen to be committed to sectoral concerns and challenges. This is part of the company's intent to have a reputation for being ethical. As a leader and the third largest global retailer with highly influential economies of scale, it is in its interest to be part of the sectoral trend for pre-competitive advantage. Tesco has become an active member of the WCF (the first UK supermarket to do so) participating in two programmes. It also lists the CGF, IGD, REAP, WRAP and RSPO among its partners. These partnerships indicate activity to address sustainability impacts across the entire supply chain, from agriculture to waste practices. They also indicate Tesco's power to influence the network Tesco creates value from sustainability through a strategic approach and leveraging its role as a dominant sectoral actor.

Tesco is changing its practice to become more open and transparent about its activities to engender trust and encourage collective action. This partnership approach also helps Tesco have access to and stay abreast of the latest sectoral data and trends. This helps the company pre-empt customer expectations of how it manages its business responsibly. As part of this approach, Tesco's proactively engages with NGO's as critical friends as, even though inconvenient there are "*merits to what they are saying*." (Sustainability director). This change in mindset is indicative of the company becoming more collaborative with stakeholders, open and willing to learn. In order to develop this type of relationship, Tesco has talked to NGOs, convened or participated in events to develop an understanding and solutions and launched innovative pilots as a result. Another type of partnership is participation in trade association's pre-competitive activities. The rationale for collaborative advantage is that shared resources and leveraging industry scale. It is cheaper to collaborate with partners on programmes that share resources, such as gathering data. Also, contextual constraints are a critical issue as some commodity supply chains Tesco has visibility of, direct access to, and control over; whereas others, such as cocoa, palm oil or soy, require collective action. As one respondent explained:

> *"You'd have to go through industry bodies and then persuade everybody to demand the same thing as the way to bring about the change."* (Responsible Sourcing manager)

While another explained it as,

> *"So, the key message is leverage. Do we have leverage? If we don't, can we grow our leverage by joining in with others? If yes, then once we have either that leverage or ability to grow it then we start going to the supplier because some of the things one would be asking suppliers to do. Sometimes it leads to destruction; it's going to ask as to operations why I should do it? if I can ignore this customer I will. And therefore, only your leverage will make them listen to you."*

In this instance, the respondent was referring to leveraging the threat of the end of a supply contract if a supplier did not comply.

Style of Practice

Tesco traditionally managed its supply chains within the traditional economic paradigm. Therefore, it's management component emphasised SCM links, particularly structurally ones. A high emphasis was put on control methods and continues to do so. This is exemplary of a value creation model that is at stage 1: 'doing old things in new ways'. However, with the change in leadership, the company has entered a new phase of management with a change in practices. It is looking to transform its core business into a more responsible business model and in doing so increase prestige as an ethical organisation. In order to take this approach, respondents have described optimal components. These include integrating sustainability structurally within the organisation, its business functions and relationship management processes. However, Tesco respondents said that this has not been realised yet, and often the sustainability teams remit is at odds with the company culture. Furthermore, communication is hampered both across business functions dedicated to SCM and with supply chain partners because there is a prevalent closed, secretive and controlling company culture. In order to reach its target of becoming an ethical and responsible business, manifest through its supply chain practices, these attitudes will need to change.

In Tesco's structural and relational links there were considerable inconsistencies in how it integrated sustainability (Table 4.9). Overall, Tesco rated highly in understanding impact, particularly from a risk perspective. It also continued to exercise control methods. This has meant it has extended its activities pre-competitively to ensure its influence at a concurrent level of sectoral activity. However, in doing so and in its efforts to become develop trusted partnerships, it is having to change its behaviour and become more cooperative, accountable, adaptive and reflective.

Table 4.9: Summary of Tesco's Structural & Relational Links used to Implement Processes

Focus of links	***Structural links***	***Level of activity***	***Relational links***	***Level of activity***
SCM	Planning	Med	Management methods	Med
	Control methods	High	Power & Leadership	Med
	Workflow structure	Low	Risk & reward	High
	Organisational structure	Med	Culture & attitude	Low
	Communication structure	Med	Trust & commitment	Med
	Knowledge management	Med	Cooperation	Med
SSCM	Resource fitness	Med	Shared values	Low
	Transparency & traceability	Low	Visionary	Med
	Resilience	Med	Innovative	Med
	Continuous improvement	Low	Long-term focus	Med
	Holistic coordination	Med	Accountable	Low
	Understand impact	High	Adaptive/ flexible	Low
	Technological	High	Reflective	Low
	Mergers & acquisitions	Low		
	Degree of embeddedness	64%		59%
	Focus of Links	SCM		SCM

4.4.7. Sub-case Study: Marks & Spencer

Organisational Orientation

Structure – Marks and Spencer (M&S) is a UK publicly listed grocery and consumer goods MNC retailer. It delivers value to 98 shareholders but has a strong ethical and responsible business reputation that mediates shareholders' expectations by delivering sustainable value. It has a reputation as a company that appeals to shareholders who are attracted to a sustainable business model that delivers long-term growth and value. The organisation is structured as a flat-type with limited levels of management. This increases individual responsibility and decision-making, while decreasing bureaucracy, enabling a more dynamic and flexible company. This was done by reducing the number of executive director roles from six to four and establishing an 11-person operating committee to replace the 20-person management committee. The operating committee consists of the four executive directors and seven director roles with a mix of three product categories managers, three business functions and one international geographical function. The CEO oversees the company's sustainability work and he is responsible for ensuring that each of the operating committees understands its obligations. The Director of Sustainable Business is responsible for the *Plan A* Steering Committee, which includes the Director of Sustainable Business, Head of Sustainable Business, and Corporate Head of Human Rights, who report directly to the Executive Director of Customers, Marketing and M&S.com, who chairs the

committee. This committee is also supported by a Sustainable Retail Advisory Board, which consists of 12 external experts and chaired by the CEO.

Strategy - M&S is committed to being a sustainable business and, as such, sustainability is fully integrated into the corporate strategy. Its orientation is to be a sustainable business based on its *Plan A* strategy. *Plan A,* launched in 2007, is the strategy to make the company more sustainable. There are four strategic priorities for the company – UK food revenue, general merchandise gross margin, UK general merchandise revenue, and free cash flow pre-dividends, that deliver sustainable value, growth and profits. Therefore, the values by which decisions are made strategically are founded on corporate principles, of which sustainability forms the core.

Culture - *Plan A* values are based on its corporate principles of inspiration, innovation, integrity and in-touch, and governance principles of leadership, effectiveness, accountability and engagement. Corporate principles were rebranded in 2015 to strengthen the synergy between the old and new corporate culture. As sustainability becomes more deeply embedded in the culture, attitude and identity of the company, there is continuity with those of the employees in practice. In fact, M&S's reputation as a leader in sustainability that embodies these principles was concurrent with the primary data gathered. In a discussion with a sustainability manager about why M&S addresses sustainability issues so comprehensively and holistically across, she explained,

> *"As much as we possibly can, and there are boundaries to this, we do try to be a responsible retailer and we do not run away from problems and find the best solution. We recognise that we do have a leadership role within a retail sector. We believe that there are greater consequences to the decisions we make because of that leadership role, so others will tend to follow."*

M&S takes its position as a responsible and sustainable leader seriously. It recognises that it sometimes goes against what the customer expects, taking a more informed, expert decision as is the cases with palm oil or soy. This demonstrates the strength and conviction of the principles underpinning decision-making.

Alongside Unilever, M&S was frequently cited by respondents as an example of best practice, including consistency of principles in practice. For example, the company innovated on and has become an industry leader in accountability and transparency with the implementation of management systems and tools. These include its mapping tool, 'benchmarks & indices' webpage and reflective reports on lessons it has learned from

implementing *Plan A* over 10 years. To emphasise its role as leader and representative of greater accountability, openness, honesty and reflectiveness, it states on its website:

> *"We launched Plan A 2025 in 2017 which strengthens our commitment to address these issues with 100 bold new targets. Crucially, it forces us to address questions to which we don't yet have answers but must address if we are to become a truly sustainable retailer."* (M&S, 2017a)

Sustainability Principles and Priorities – M&S's principles are very clear and simple – to "*redefine the role of business in society"* Andrew Roe, CEO (M&S, 2017b) through multi-stakeholder engagement. This makes the company highly eco-centric in its sustainability orientation. M&S's seeks to have a positive impact on well-being, communities and the planet and enable customers to live sustainably.

M&S originally identified 100 targets across five sustainability issues – climate change, waste, resources, fair partnerships and health, when it launched *Plan A* in 2007. These have been added to, reviewed and updated, based on materiality and stakeholder assessments, with a new set of targets launched in 2017 for 2025. These are set against a greater understanding of what is required to become a sustainable and responsible business. M&S has reviewed its position on global warming, human rights and modern slavery. It has also amended its five pillars to three – nourishing well-being, transforming lives & communities, and caring for the planet. In acknowledgement of the scale of issues and their rapid advancements, M&S has recognised that incremental improvements are not sufficient. The company is now leveraging its reputation as a sectoral leader to call for systemic change and find a new way of doing business.

Business Model – *Plan A* was a move away from mainstream CSR to a holistic business model that addresses sustainability issues affecting the business and supply chains. This is a Stage 4 value creation model that has developed a new business model to create differentiation. The company's target since the inception of *Plan A,* and making the business more sustainable, was to become a sustainable business, accelerating it from a plan to the way in which it does business. Therefore, its sustainable business model is highly articulated with substantial information, resources, management systems, processes and tools mapped out to support it.

The model is values-based. At its core are the corporate and governance principles that orientate business functions. The company creates long-term value by accepting the short-term cost implications and delayed benefits that some sustainability targets may deliver.

The company also takes a holistic, fully integrated approach with business functions working to capture value in wider cultural benefits and an overall better business outcome. The business case goes beyond financial value, identifying non-monetised benefits including supply chain resilience, partnerships, and brand enhancements as powerful differentiators that increase trust with customers and stakeholders. Managing resources and relationships have become integral to this approach as value is created from them. Each of the four strategic priorities are aligned with the business model, with explicit activities describing how sustainable value is created. There is also an external component illustrative of how it takes its role as a business in society seriously; having listened to stakeholders, it has aligned itself as a responsible business with the UN SDGs.

Network Structure

M&S is highly centralised and active across its networks, creating dense links and clusters that drive collective action (Figure 4.9). It is a comparatively small company, with less purchasing and bargaining power compared to larger brand manufacturers and retailers. However, it capitalises heavily on its reputation and prestige as a leader. It has innovated on many programmes, management systems and processes both within its supply chain and business functions. It publicises these to encourage learning and best practice. M&S believes that communication structures, knowledge management, resource fitness and cooperation are critical in order to capture value across the supply chain and tackle the challenges that embedding sustainability end-to-end entails. Furthermore, as the principles of holistic and collective action fundamentally change the business paradigm, M&S believes that its supply chains will become the focal point as it is where much of its impacts are created. Therefore, it is engaged in chocolate supply chain network and networks that relate to broader systemic activities that are transforming the sector. This is evidenced by its engagement with cocoa supply chain network initiatives, such as the WCF or ICI which it was the first retailer to join both.

While acknowledging its lack of scale as a purchaser of cocoa, it recognises its experience in working with different commodities and wants to share best practice. It also acknowledges that to achieve impact requires collective action. As a sustainability manager explained,

> *"I think that pier one on the responsible business model is obviously clear up your own supply chain. Unfortunately, we need to recognise that, particularly when*

> *you're as small as us, the wider impact of that actually isn't that material. We could have the most perfect palm oil or soy and the rest of the landscape could still be destroyed. So, how do we support our wider landscape and industry transformation rather than just creating islands of green that just supply to M&S? It's very much our kind of emerging thinking, which is why we get so involved in industry collaboration because our volume is never going to be sufficient to leverage that kind of change. We actually do need to get an awful lot more people on board."*

This attitude is an example of M&S using its powerful position to influence norms. It positions itself centrally on trade association initiatives, not just for concurrence, but engaging in workgroups, programmes and activities, often taking a lead role. However, it is conscious of the influence it has a leader in driving its agenda and institutionalising principles and practices. It also recognises that it plays different roles, representing varying interests depending on its associations and partnerships, in pre-competitive initiatives. This enhances the impression of a reflective, open and responsible business that understands the needs and values of its stakeholders, particularly commercial partners trying to create differentiation while collaborating towards a shared vision.

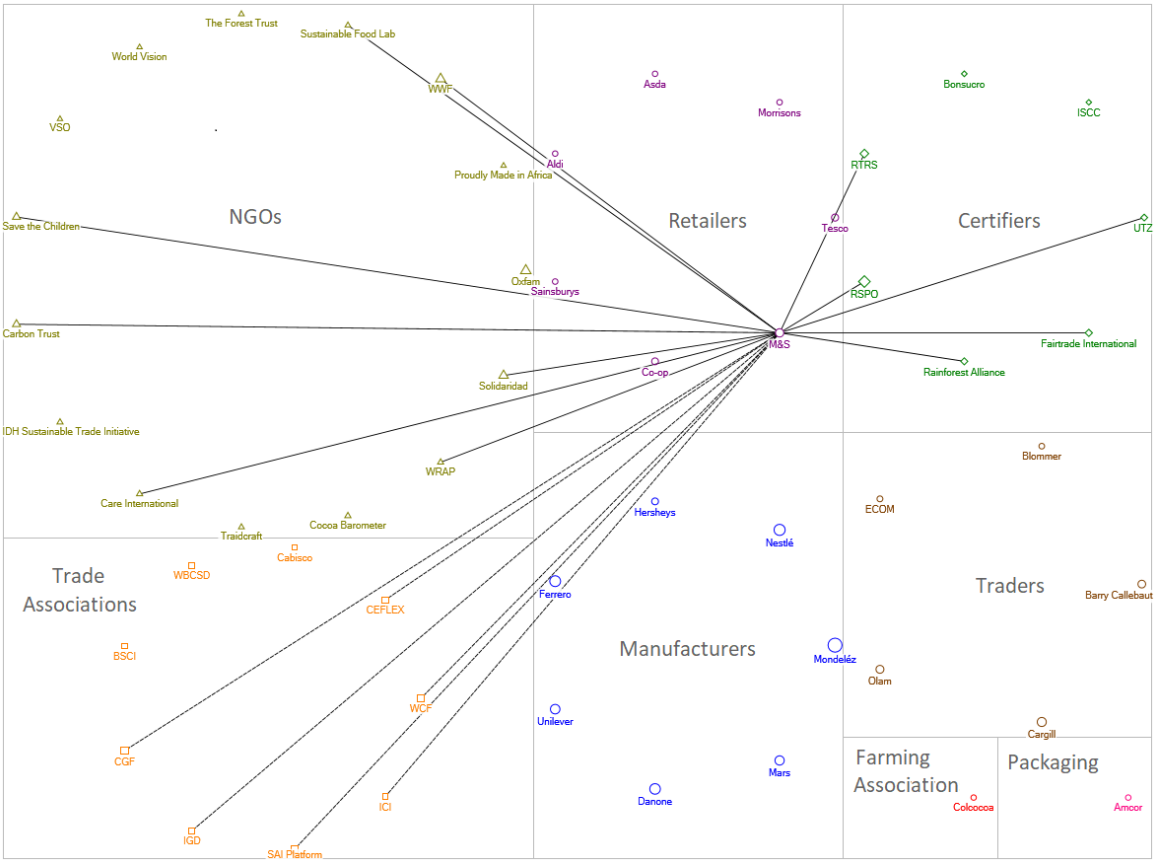


Figure 4.9: M&S's Chocolate Supply Chain Network Relationships

Within its own supply chains, M&S is centralised and controlling, with the resources to create programmes and introduce technologies that embed sustainability. It appreciates the necessity of openness, transparency, accountability, reflection and learning to collaborate effectively. It works with pro-active, dedicated companies who are willing to dedicate resources to effect change. Therefore, it creates high density within its supply chains through many links to encourage these practices. These utilise management components, create the message of a shared vision for collective action, identify committed stakeholders, and simplify processes to build these links. For example, it uses internal management systems that are externally audited and external certification programmes. As part of its management system for selecting, monitoring and evaluating suppliers its uses a balanced scorecard that covers a broad range of KPIs, of which sustainability embedded.

Style of Practice

The respondent described practices, consistent with what the company promotes, that the company is willing to be constrained by and compromise with stakeholders as it delivers long-term sustainable value. In fact, the company encourages a dense network to facilitate the participation of diverse stakeholders with different principles and priorities but a shared vision. Therefore, it positively uses its influence to encourage a values-based approach and endorse sustainability practices that it believes are necessary for a systemic paradigm shift to responsible and sustainable business.

Table 4.10: Summary of M&S's Structural & Relational Links used to Implement Processes

Focus of links	***Structural links***	***Level of activity***	***Relational links***	***Level of activity***
SCM	Planning	High	Management methods	High
	Control methods	High	Power & Leadership	High
	Workflow structure	Med	Risk & reward	Med
	Organisational structure	Med	Culture & attitude	High
	Communication structure	High	Trust & commitment	High
	Knowledge management	High	Cooperation	High
SSCM	Resource fitness	Med	Shared values	High
	Transparency & traceability	High	Visionary	High
	Resilience	High	Innovative	High
	Continuous improvement	High	Long-term focus	High
	Holistic coordination	High	Accountable	High
	Understand impact	High	Adaptive/ flexible	High
	Technological	High	Reflective	High
	Mergers & acquisitions	n/a		
	Degree of embeddedness	92%		97%
	Focus of Links	SSCM		SSCM

M&S has developed a comprehensive strategy, business case, business model and management model to fully embed sustainability within its business and supply chains. The management model has interpreted corporate aspirations and made them a reality in practice by designing and continuously improving management components, systems and processes that support this. It also takes a values-led approach so relational principles and practices rate highly within the corporate orientation (Table 4.10). It also realises that collective action and systemic change is necessary to address the scale of issues such as planetary boundaries and social inequality. Therefore, it is pro-active within its supply chains and across broader industry networks to transform business practices.

4.4.8. Sub-case Study: The Co-operative Group

Organisational Orientation

Structure – The Co-operative Group Ltd. (Co-op) is a UK-based grocery retailer that also provides funeral services, insurance and legal services. It is a co-operative owned by its four million members and 80 co-operatives. The Co-op is democratic in its organisation; members are the shareholders and are eligible to vote on motions, attend AGM and elect directors and council representatives. The members' counsel is an elected body of 100 made up of members, colleague members, and representatives from independent co-op societies. The council senate has 15 members elected by the council with a president who leads the council and senate.

Between 2009 and 2014 the company began to lose market share, suffering reputation and financial losses, particularly in its banking division. This resulted in reforming governance mechanisms and a new CEO and executive team to restore the organisation's ethos and position under a three-year recovery plan to rebuild the business to sustainable growth. The restructured board consists of 13 directors, 4 of whom are member-nominated executive directors, 5 appointed to provide professional industry knowledge, the council secretary, the chair and two executive officers. The executive team is eight-strong whose roles focus on business functions, with one executive tasked with the food product category. In the day-to-day running of the organisation, management is centralised according to policy that is decided by the governance duties of the council and board. This makes decision-making complex and onerous yet democratic as it has the advantages of strengthening stakeholder engagements. The organisation is structured operationally

around centralised business categories and functional types of activity. The operating model balances members' needs with underlying operating profit. As a values and principles-led business, it has a long-standing commitment to social responsibility, therefore ethics and social norms have always been integrated into every aspect of business behaviour.

Strategy – The Co-op's strategic agenda has been to "*rescue, rebuild and renew*" the business (Co-op, 2014). It is strategically rebuilding the company. It is restructuring its category, business functions and core infrastructure to improve efficiencies and reduce operational costs. The target of this phase is to rebuild the business for long-term, sustainable growth. The renew phase, which will begin in 2018 will focus on growing the existing business and expand into markets were members are poorly served. This includes targeting 1 million new members/customers.

Culture – The Co-op is guided by its values and principles. It views itself as "*championing a better way to do business*" for members and their communities, and a leader as a campaigning business and on social issues (Co-op, 2016):3). The Co-operative Group adhere to the values and traditions of the co-operative movement. Its values are ethical based on self-help, self-responsibility, democracy, equality, equity and solidarity. Its principles are the guidelines by which they put their values in to practice in how they do business. Therefore, it considers principles more valuable than profits and affect how business gets done. These principles are voluntary and open membership, democratic, member economic participation, autonomy and independence, education, training and information, co-operation among co-operatives, and concern for the community. However, there are trade-offs between ethics and commercial interests that challenge the business model, as the respondent explained, "*the Co-op still is a commercial organisation, even though it wants to be ethical*."

Sustainability Principles and Priorities – The Co-op's sustainability principles are a simple and clear extension of its co-operative values and principles. These are also closely aligned with fair trade principles of equality and equity. The dimensions under which sustainability is defined are equity, ecological and social responsibility. However, in practice, because equity and social responsibility are already a functioning part of the organisational orientation, employees tend to refer to the environment when explicitly addressing

sustainability issues. These principles make the organisation very eco-centric.

In terms of setting priorities, the Co-op considers many factors that are based on principles. Stakeholder needs are hugely influential on principles and priorities across the business. The company believes considering stakeholder needs key to effectively managing the supply chain. As the respondent explained, "*we're quite the other end in terms of managing our stakeholders to maybe someone who just cares about the share price."* The Co-op emphasises the humane and social aspect of the business. Their approach is different to conventional business in how priorities are set in consultation with stakeholders. Stakeholders are central to the business model. Sustainability priorities address ethical and sustainability impact areas across the supply chain including business ethics and behaviour, community, ethical trade and human rights, healthy living, food and farming, environment and resource use, colleague wellbeing, diversity and inclusion, and health and safety. They are also set by materiality risk impact mapping. These are developed to support the internal values and principles and the SDGs externally in a holistic, systemic manner.

Business Model – "*We only exist to bring value and values to our Membership."* (Co-op, 2016):4). The co-operative business model is member-centred, and engagement is at the heart of this responsible business model. It has developed six KPI's to monitor adherence to and progress with the business model. These include financial, people, customer, membership and social responsibility – making this an ethical, responsible business model. Interestingly, while other businesses in this study are re-orientating the business model toward and capturing value in responsible, sustainable values and stakeholders, the Co-op has always operated this way. Therefore, it is at Stage 1 of the value creation model of doing old things in new ways, but ethically exceeding the baseline of activity under this paradigm and operating a stage 4 approach. It is exploiting the megatrend of sustainability and creating differentiation by extolling and re-emphasising its original and long-standing ethos as a values-led business with ethics and social responsibility at its core.

Network Structure

The Co-op is not highly centralised nor operates in dense networks (Figure 4.10). This is attributed, in part, to the fact that it does not have the scale nor resources to invest in technology, programmes and association subscriptions to develop the links necessary to build networks. Therefore, it stays active and central across its networks by participating in

industry events and conferences, and by being proponents of external standards organisations, such as the GRI. However, its network partners are clearly clustered around its principles and values as a co-operative and its alliance with the fair trade movement.

It believes in collective action and concurrence across the F&B sector to achieve impact and tackle the scale of sustainability issues. As the respondent explained,

> *"It helps, it helps in terms of you understand how, what conversations you can have with people, what you need to do, what you can talk about, what you can't talk about, what will actually make the difference. So, what will make the change happen on palm oil? Probably everyone just asking for the same thing and saying we've all got the same goal. Just go for it. We're in a bit of a mess because everyone's asking for different things. So, my big call out to my peers and other retailers is we just need to be banging the same drum. Otherwise, we're not going to get anywhere."*

However, the organisation does not leverage its scale within the sector nor market as it does not consider it substantial enough to influence the network, especially more powerfully perceived brand manufacturers.

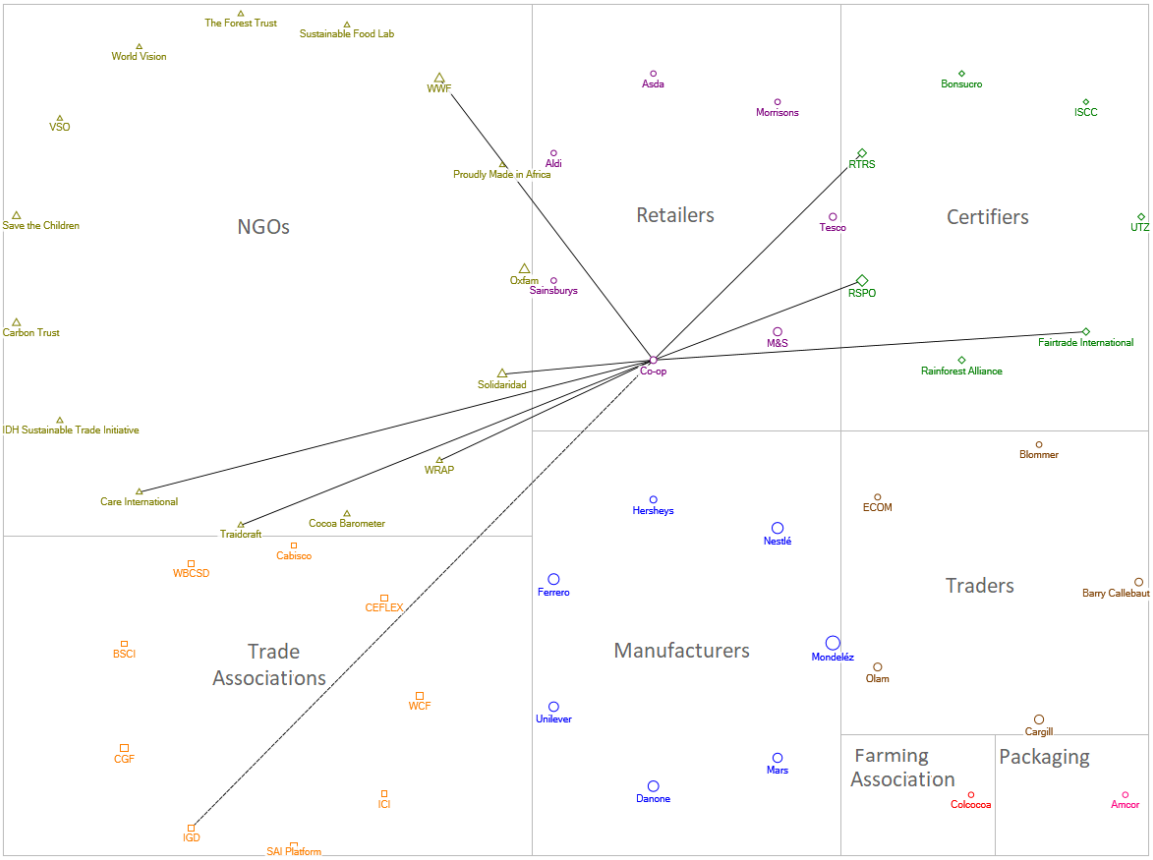


Figure 4.10: The Co-op's Chocolate Supply Chain Network Relationships

In terms of its supply chains, it does not centralise itself to use its power and influence to orientate the supply chain to its principles, priorities and practices. Rather it utilises its network, particularly Fairtrade, to ensure sustainability standards upstream. It ensures ethical and socially responsible business practices in terms of impact on its stakeholders.

On completion of its current strategic plan, it will orientate itself across the network to capitalise on its brand value of *doing the right thing*. It aspires to be an exemplar to industry peers with other ways of doing business seeking more responsible business models and practices. It believes responsible business concerns will become more critical to the sector in years to come. That there will be less opportunity to differentiate business's competitive advantage by being first-movers on sustainability issues as they have become commonplace. Therefore, it hopes its reputation and experience proceeds it in attracting talent and partners, which it will leverage to become more influential.

Style of Practice

The Co-op is a values-led business and therefore its relational links are its strengths (Table 4.11). However, it can optimise these more by focusing on power and leadership, particularly within its networks. It does not optimise its networks, placing itself in a more powerful and influential position. Instead, its behaviour is representative of subordinate and acquiescent practices. It claims it does not have the scale to leverage influence, but as M&S has demonstrated, it can place itself in a more central position by becoming active in trade associations and industry multi-stakeholder initiatives – capitalising on its reputation and experience in co-operative practices.

The company is weaker in structural links because it is undergoing a structural rebuild across its business and operations that are affecting the management of its supply chains. However, even though most SSCM structural links perform better than traditional SCM practices, it is not highly transparent. It has published its governance mechanisms, i.e. policy papers, standards and reporting, in line with the strategic restructuring but it does not publish its assessment tools, such as materiality assessments, or supply chain impact reports. Due to limited resources, its resources fitness is low. However, because the majority of its supply chain are Fairtrade or managed locally and ethically, they do not require a high level of resource investment as sustainability criteria are already factored into the cost rather than an add-on to the commodity.

Table 4.11: Summary of the Co-op's Structural & Relational Links used to Implement Processes

Focus of links	*Structural links*	*Level of activity*	*Relational links*	*Level of activity*
SCM	Planning	Med	Management methods	High
	Control methods	Med	Power & Leadership	Low
	Workflow structure	High	Risk & reward	Med
	Organisational structure	High	Culture & attitude	High
	Communication structure	Med	Trust & commitment	High
	Knowledge management	Med	Cooperation	High
SSCM	Resource fitness	Low	Shared values	High
	Transparency & traceability	Med	Visionary	High
	Resilience	Med	Innovative	Med
	Continuous improvement	High	Long-term focus	High
	Holistic coordination	High	Accountable	High
	Understand impact	Med	Adaptive/ flexible	Med
	Technological	Med	Reflective	High
	Mergers & acquisitions	Low		
	Degree of embeddedness	69%		87%
	Focus of Links	SCM		SSCM

4.4.9. Sub-case Study: Amcor

Organisational Orientation

Structure – Established 1986, Amcor Ltd. is an Australian PLC packaging company, specialising in flexibles and rigid plastics with over 95% sales in F&B, healthcare and tobacco packaging. As the leading manufacturer of packaging for food, it produces approximately 1,1621 billion units of flexible packaging and 366.4 billion units of rigid plastic packaging for food (Euromonitor International, 2017k). It is configured to deliver value to 71 shareholders, with nine Directors on the Board reporting half-year reports to shareholders. The executive team consists of 11 senior executives. They oversee the two product groups (flexible packaging and rigid plastics) across eight segments including seven regions and tobacco packaging. There is a cross-over of executive functions between five product type (including regional divisions) divisions and two business functions, alongside the Company Secretary/General Group Counsel, CEO/Managing Director and Executive Vice Presidents/CFO. The company consists of 223 companies and 90 subsidiaries operating globally. It operates in over 200 facilities across 43 countries and employs over 35,000 people globally (Amcor, 2018).

Strategy – The company announced in it 2016 Annual Report (Amcor, 2016) that it aimed to deliver increased shareholder value by 10% per annum by focusing on its strategic

agenda. This is as a result of declining revenues, especially cigarette consumption, and a reconfiguration towards optimising food packaging solutions. Even though the company's business portfolio and business model has evolved over time, key features of the strategy remain consistent: maintain a category leadership position, develop the capacity for business sustainability and be opportunistic to strengthen leadership position. As part of this strategy, Amcor has focused on value-creation for its shareholders and customers through acquisitions, innovation and entering new, high-growth markets. Therefore, based on global trends described in the background study, Amcor seeks to deliver growth by focusing on innovation and industry leadership for differentiation. This has led to a strategic agenda that includes sustainability and the company's positioning as a leader and innovator in sustainable products.

Culture – Consistent with its ambitions to be a leader in business, the company culture endorses this ethos. The *Amcor Way* captures the capabilities that "*enable our businesses to win*", including talent, commercial excellence, operational leadership, innovation, cash and capital discipline (Amcor, 2018). These are founded on values of safety, integrity, collaboration, accountability, and results and outperformance. An interesting feature of the company culture is how it captures stakeholders in terms of creating value. On the company website, it publishes these as customers, investors, people and the environment. However, on annual reports it focuses on the former two, indicating the company's orientation towards delivering shareholder value.

Sustainability Principles and Priorities – Sustainability is a core feature of its recent strategic agenda (Amcor, 2016 & 2017; Amcor, 2018b). It is captured across all core values and within the *Amcor Way.* As a packaging leader, it has recognised sustainability as an emerging trend and growth market. As part of its strategic agenda, it has set environmental and social goals to reduce the environmental and social impacts of their business and industry overall. Amcor is developing strong responsible packaging and environmental impact focus across their product-types. It is taking a multi-stakeholder approach and collaborating across five domains: environment, marketplace, community, workplace and economy. This is in-line with the SDGs goals for sustainable development and accountability for the impact of their activities and products globally. However, on closer examination the economy target is slightly misleading. It focuses on environmental materiality and the physical limits of a linear system of production, rather than economic

inequality and value distribution. Amcor takes a circular economy approach to systems thinking, designing out waste and pollution. Therefore, in terms of its sustainability focus, its focus is primarily on the environmental and social dimensions. Up to 2016, when it referred to economic sustainability it either infers the circular economy or business sustainability, rather than the broader economic sustainability consistent with the SDGs. As sustainability becomes ever more integrated into its organisational orientation, this focus is changing and becoming more equitable and sustainable. This can be seen by the change of definition of economic sustainability in its 2016 *Annual Report* (Amcor, 2016) and its 2017 *Sustainability Review* (Amcor, 2017b). The latest conception of economic sustainability has extended the environmental/economic concept of the circular economy based on the principles of *natural capital.* It also includes the economic sustainability of its workers. However, the 2017 definition it still limited, in that it considers the economic sustainability of its workers but not that of its supply chain stakeholders. There is also a clear discourse on ethics emerging as sustainability integrates with its value of integrity. However, for all its rhetoric there is still the legacy of the original conception of sustainability which was focused on environmental and safety priorities based on principles of risk and compliance.

Representative of its value of accountability, the company publishes both an internal annual sustainability review report and an external GRI report. It is also developing this value as it becomes more closely linked to sustainability. This can be seen by the publication of its Materiality Assessment in 2017 (Amcor, 2018b). Representative of its capabilities that ensure its position of leadership, it is also integrating sustainability into its core business and company brand value, and into its role within the marketplace and industry. As such, it works in multiple collaborative partnerships within its supply chain and pre-competitive partnerships to change the mindset and activities of the industry. This position of leadership is primarily focused on the packaging industry rather than the broader F&B sector. However, Amcor is also partnering with the United Nations World Food Programme to develop packaging as part of SDG goals to alleviate hunger and improve nutrition.

Business Model – Amcor's business model has been consistently at the core of its organisational orientation for over a decade, ensuring its success and position as category leader. This has been primarily based on creating shareholder value, indicative of a traditional neo-classical business model. It has built its competencies, captured in the

Amcor Way around this model to ensure it is fully embedded in the company. Amcor has captioned this as a "*proprietary operating model*" (Amcor, 2016:8). As it seeks to become more sustainable, the company has embedded sustainability into its business plan. In doing so, its consideration of stakeholders has changed, as evidenced by the materiality assessment. Between 2016 and 2017, the list of stakeholders has increased dramatically to include consumers, customers, co-workers, suppliers, business groups, industry bodies, investors, governments, regulators, and communities. It's scope of stakeholder consideration encompasses its supply chain and sectoral networks. The business model is changing to a more responsible model higher consideration is given to sustainability and stakeholders. When asked if the respondent saw changes in embedding sustainability into the strategy and business model, the respondent said, "*Yes, sure. Over the years there are more and more policies, procedures and processes, definitely, yes*." As a result, the supply chain is moving beyond risk and compliance to innovation and market growth.

Network Structure

It was difficult to build a rigorous image of Amcor's commercial relationships across the network as this information was not forthcoming from the company. Therefore, based on publicly available information, two relationships were identified: one collaborative within the supply chain and the second pre-competitive at an industrial level (Figure 4.11). Based on this limited information, it appears to have low levels of centrality and density across its supply chain network. This finding is incongruent with its claims of leadership regards sustainability, yet conversely congruent with a traditional commercially competitive whereby information is proprietary. Amcor claims market leadership due to it's ranking as a category leader in F&B packaging are well substantiated. However, its ambition to be a sustainability leader highlights two levels of disparate practices regards its principles.

Within its supply chain, it favours more traditional SCM activities. Amcor's principles of sustainability primarily seem to be ego-centric, based on neo-classical economic principles whereby it has created sustainability value in its products, therefore strengthening its market position as leader. Its efforts to be sustainable within its supply chain has been recognised among its peers at the World Procurement Awards 2017 when it won the '*Internal Transformation'* category and winning in the gold and silver categories at the Flex Packaging awards. However, it remains secretive as to who these suppliers or customers

are with who it collaborates for sustainability. This is substantiated by its unwillingness to share information on its commercial collaborative relationships within its supply chain.

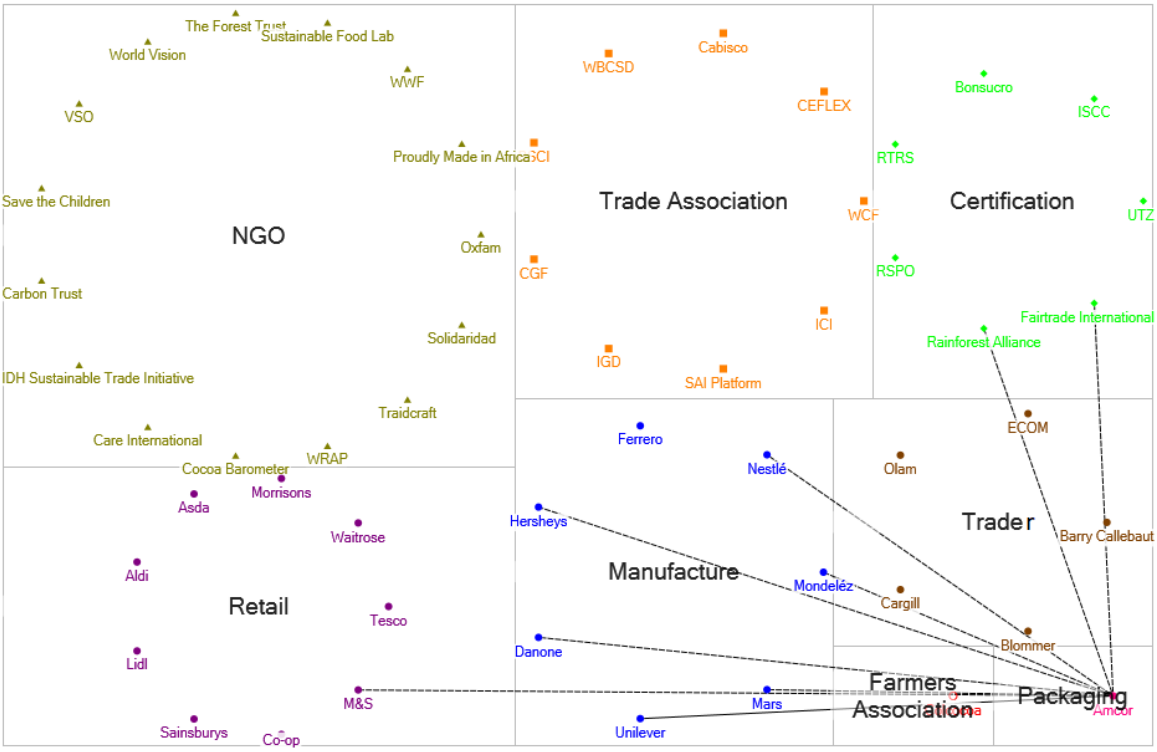


Figure 4.11: Amcor's Chocolate Supply Chain Network Relationships

In comparison, across its supply chain network, Amcor favours more SSCM activities as it can be seen to be more collaborative pre-competitively. As the company orientates towards a more sustainable business model, it is using its network position pre-competitively to create value in its reputation as an industry leader in sustainability. This can be seen by its presence at trade events and conferences globally. It is also taking the lead in an industry initiative towards 100% recyclable packaging at the Ellen MacArthur Foundation. These industry rep-competitive relationships are mainly with manufacturers, who are their primary customer base and where the company considers it can create the most value. The respondent explained the difference between collaboration and pre-competitive collaboration as,

> *"There are different forms of collaborating, the example with the [brand manufacturer] in a way was collaboration within an existing value chain. When it comes to pre-competitive collaboration, more on a horizontal level, I think it's useful to establish standard, metrics and tools. But going beyond that, pre-competitive collaboration is often an excuse to do nothing because people sit together, they talk about it and then somehow everybody says "yeah" … I think honestly contenders' alignment, metrics is key. Beyond that, I think there should*

be much more competition because usually, competition drives progress. People have to agree on what to compete on like in sports, these are the rules, and this is how you play the game. Then I think it should be fierce competition who can play the game best."

Style of Practice

Similar to other companies in this study, Amcor is a value-based company. It creates its unique value proposition in its capabilities, strategy and business model that enable it to be a leader in the marketplace and industry. As such, it is more competent in structural activities than relational activities (Table 4.12). This is because it is a process-focused company. There is ample evidence of planning methods that are closely linked to resilience, continuous improvement and technological activities, such as materiality assessment, LCA, natural capital valuation, customer surveys, and emissions scoping among others. These methods have enabled it to develop strategic goals based on scientific data, continuously improve and create value in sustainability. As the respondent explained,

"If you can make it credible, then this is an integral part of the business model. Your supplier can expect continuous improvement and that you can expect good risk management. So that there no bad surprises. This is then a value that people are also willing to pay for."

Mergers and acquisitions are also a key feature of how Amcor can influence stakeholders to meet their sustainability standards. This issue is relevant for them in developing countries were legislation and enforcement are not aligned with Amcor's ethical and sustainable principles or those of their customers.

Table 4.12: Summary of Amcor's Structural & Relational Links used to Implement Processes

Focus of links	***Structural links***	***Level of activity***	***Relational links***	***Level of activity***
SCM	Planning	High	Management methods	Med
	Control methods	High	Power & Leadership	High
	Workflow structure	Med	Risk & reward	Med
	Organisational structure	High	Culture & attitude	Med
	Communication structure	Med	Trust & commitment	Med
	Knowledge management	Med	Cooperation	Med
SSCM	Resource fitness	Med	Shared values	Low
	Transparency & traceability	Med	Visionary	Med
	Resilience	High	Innovative	High
	Continuous improvement	High	Long-term focus	High
	Holistic coordination	Low	Accountable	High
	Understand impact	High	Adaptive/ flexible	Med
	Technological	High	Reflective	Med
	Mergers & acquisitions	High		
	Degree of embeddedness	83%		74%
	Focus of Links	SCM		SCM

Whereas, regards relational activities the company has a more mixed approach. As discussed, leadership features highly in the company ethos. In line with this practice, it also exercises power both within its own supply chain and at an industry level. Risk and reward rate highly regards activities aligned with its values of integrity, results and outperformance and its capabilities. However, its rewards still favour shareholder returns, moderating the effectiveness of this activity. Culture and attitude are also considered moderate regards sustainability. There is evidence that this is changing across the organisation, but it has not yet become fully effective, especially in SSCM. In terms of shared values, the company has begun seeking alignment between sustainability goals and business goals, but it does not clarify its position regards helping stakeholders achieve these goals. Amcor leverages its position to influence stakeholders especially those who present a high risk. This is changing as evidenced by the growing consideration of stakeholders needs and accountability of the impact of Amcor's operations.

4.4.10. Sub-case Study: Colcocoa[11]

Organisational Orientation

Structure – Colcocoa is a Columbian farmers association of twelve cooperatives established in 2013. It represents 4,400 cocoa growers, 35% of whom are female. The company is legally structured as a *Simplified Shares Corporation* (SAS). This is a Columbian legal business structure that is most frequently used due to tax benefits. The company was co-founded by Gabriela Alvarez and Jon Carlos, who remains the company director. The company started by leveraging off the stronger coffee network to trade, as "*in Colombia in the cocoa area also the institutional strength of cooperatives was extremely weak*" (Respondent). The company grew and is now geographically spread across ten county departments, predominantly in the west and north of Columbia. It operates in 60 purchase stations across the departments. It specialises in high-quality, sustainable and ethical cocoa. The company has developed two functional activities. Hacienda La Tentación is an agribusiness initiative established to learn and share knowledge in sustainable, quality cocoa production. Echar Pa'lante is a program that trains farmers in quality and best

[11] It must be noted that this company is resource poor and smaller than its counterparts in this study. Therefore, there is limited data – particularly secondary documents and websites – to present.

practices under the ethos of the company's business values and business model of prosperity.

Its approximate annual income is structured significantly differently to the other companies in this study (except the Co-op) as it calculates the net income per farmer rather than that of the company. This is calculated at 1.5 minimum wage per farmer @ Columbian rate = £10.31 per 8-hour day. This finding is consistent with the unequal value distribution (Exhibit 2) and the annual income of other companies in this study (Appendix XVIII).

Strategy – The company's strategy is closely aligned with its business model. Its strategic aim is to reach prosperity through the following goals:

- *"Economic: Net income of 1.5 minimum wages, equivalent to a family of four 'basic basket of goods' (Canasta Basica Familiar Columbia)*
- *Quality: 80% of the volume achieves export quality standards*
- *Productivity: 800 kg/ha per year*
- *Social: Total compliance with code of conduct and 80% compliance with the program "Echar Pa'lante" (verifiable)*
- *Environmental: Total compliance with code of conduct and 80% compliance with the program "Echar Pa'lante" (verifiable)*
- *Happiness: As an overarching indicator of our program, happiness and satisfaction measures are incorporated in Echar Pa'lante and are tracked alongside the other indicators."*

  (Secondary source: document provided by participant)

Culture – The company culture is captured in its strategic goals. These capture values of sustainable and ethical economic equity, social well-being and happiness, and environmental viability. At the heart of this culture is an organisation trying to address the hopes and fears of its members – the 4,440 farmers, their families and communities. As the respondent explained,

> *"What we have is the hopes and fears [of the farmers]. What drives you and what you want, which is not always asked. We assume what people want or aspire to. We almost implicitly assume that people are happy being poor. So anyway, ask them what their hopes and fears are. Hopes and fears are interesting for many farmers. I was surprised when we did that last year and there was a lot about having their own house, it's such a symbolic, huge thing. The kids' education, taking care of their parents… Just understanding the different cultures. They are different in different parts of the world and understanding in each region what are some of the things they're driven by."*

The respondent explained that not only hopes but fear is a critical driver. Risk drives the premiums on yields and core prices. Therefore, a range of bespoke tools and resources have been developed to address these across its activities. An example of these principles in action is the values of passion, integrity, transparency, compromise and responsibility that are at the core of Hacienda La Tentación.

Sustainability Principles and Priorities – Sustainability principles and priorities are the reason the business was established. 100% of its cocoa is certified sustainable. However, it takes a different view to sustainability principles compared to downstream network members, particularly those from a neo-classical and Westernised value system. As the respondent explained,

> *"Okay in terms of what is sustainability, we do have a bit of a different view. So, traditional is the three pillars; the social, economic and environmental. I think what we'd like to see a bit different is in our region. We'd like to call it prosperity. So, it's beyond sustainability. This is different from what probably needs to happen in Africa in some regions or some areas still in Latin America and Asia. But our own perspective is that we'd like to see more prosperity and not just sustainability. Sustaining is something not very exciting in a way. What people want to do to stay in the farms and to have a living is not just barely scratch by. Poverty - that's kind of not significantly appealing. So, we put quite a bit of emphasis in our [business] model on the economic side which is a big deal obviously. If you don't eat every day it's hard to care about a lot of other things, and they all are connected of course; climate change impacts and changes in seasons, risk, vulnerability, there are a lot of aspects. This doesn't apply for everyone but in our project, we'd like to talk about more prosperity rather than just sustainability."*

Business Model – The business model is configured to deliver sustainable prosperity through the Echar Pa'lante programme which is verified and monitored by CERES International. It focuses on the following activities to create value:

- *"Direct and committed relationship with producers and their communities.*
- *Quality and professionalism*
- *Transparency*
- *Traceability*
- *Innovation"*

(Secondary source: document provided by participant)

As such, it deliveries value through three action groups within the programme representing different levels of progression towards the program goals. To ensure its core value of quality all aspects of the program are verified and monitored annually since its inception.

Network Structure

Colcocoa has a very peripheral presence on the global chocolate network. The links captured in the network analysis (Figure 4.12) represent a pre-competitive, once-off trade event in London in 2017. This would suggest a low level of centrality and density, yet it optimises its resources and network to have its voice heard.

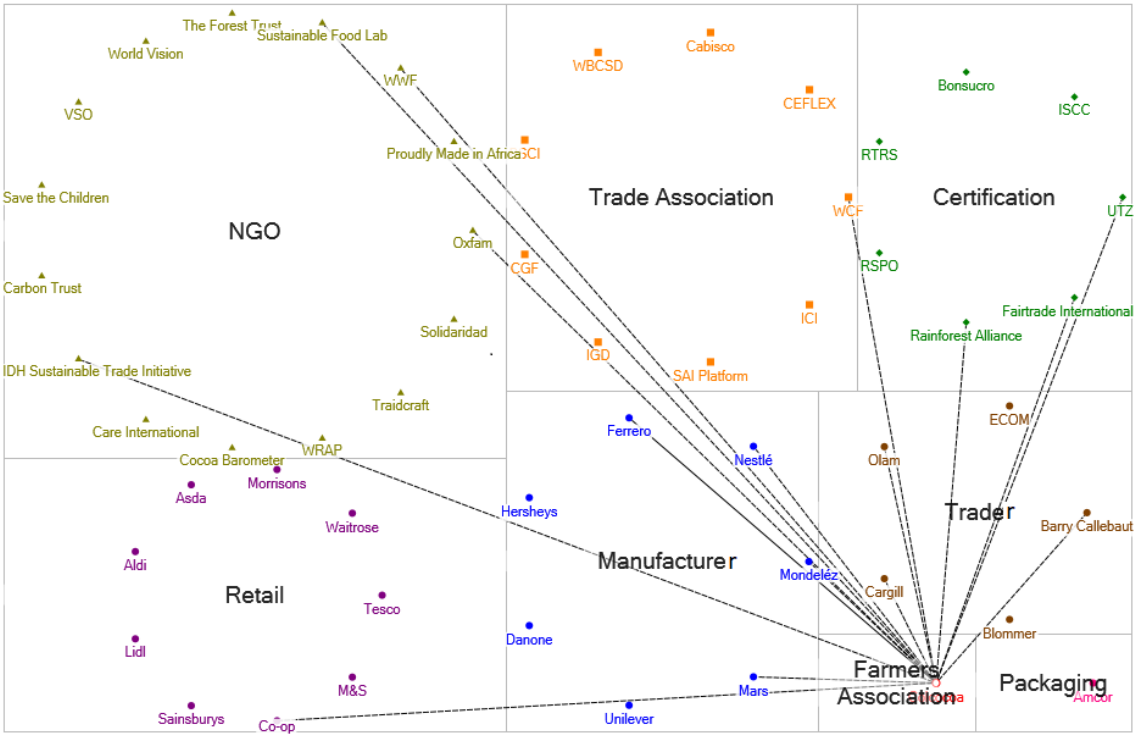


Figure 4.12: Colcocoa's Chocolate Supply Chain Network Relationships

This is evident by its presence at the Innovation Forum's event, whereby it was the only one of two farming associations present. It was incumbent upon NGOs, such as Fairtrade International, who attended that day to represent the interests of the over five million cocoa growers and their farming associations. Another activity through which it optimises its resources and network is through one of its founding members, Gabriela Alvarez. She received her doctorate in SSCM and now works as a global consultant, based in Switzerland. She has published and has impact with her work. Therefore, she is an ambassador for the company at the academic and practitioner events she attends.

Style of Practice

Colcocoa exemplifies sustainability activities, however, it is weaker in traditional SCM activities (Table 4.13). This is because the company was established as a sustainable business and as an upstream commercial company does not have power and influence over

larger, more powerful MNCs downstream. This can be seen by low resource fitness and power & leadership activities. This creates a dependency on more resourceful commercial and non-commercial members. It has developed key strategic partnerships such as CERES. Furthermore, its activities are centred around its organisational orientation and value proposition. Throughout the duration of this study, the company has gradually populated its website, providing a clearer communication structure, sharing knowledge and technology for innovation. These are based on a high value in co-operation and shared values among its primary stakeholders. However, it does not share the same values, particularly economic sustainability, of downstream commercial network members.

Table 4.13: Summary of Colcocoa's Structural & Relational Links used to Implement Processes

Focus of links	***Structural links***	***Level of activity***	***Relational links***	***Level of activity***
SCM	Planning	Med	Management methods	Med
	Control methods	High	Power & Leadership	Low
	Workflow structure	Low	Risk & reward	Low
	Organisational structure	Med	Culture & attitude	High
	Communication structure	Med	Trust & commitment	Med
	Knowledge management	Med	Cooperation	High
SSCM	Resource fitness	Low	Shared values	Low
	Transparency & traceability	High	Visionary	High
	Resilience	Med	Innovative	High
	Continuous improvement	High	Long-term focus	High
	Holistic coordination	High	Accountable	High
	Understand impact	High	Adaptive/ flexible	Med
	Technological	Low	Reflective	Med
	Mergers & acquisitions	n/a		
	Degree of embeddedness	72%		74%
	Focus of Links	SSCM		SSCM

4.5. Summary of Research Context

The purpose of this chapter was to present the case study findings on the activities of the sustainable chocolate supply chain network and its commercial companies. As such, there are several contributions from the case study findings consistent with the theory, themes and mechanisms developed in the conceptual framework (Figure 2.7).

Firstly, the supply chain network was mapped in a novel way using SNA. Organisations across the network were identified and classified, and their complex relationships examined, to understand the network structure and how organisations use their position individually, and in partnerships and as clusters, to influence and control how the supply chain is managed sustainably. The mechanisms of centrality and density were used to

demonstrate how organisational orientation and network structure are used to determine values (sustainability orientation) and the power (SNT) to actualised them into practices (Figure 2.7). This data was captured at a network level (Section 4.3) and organisational level (Section 4.4).

Secondly, in mapping the network structure the study described the links between organisations (Section 4.3.2). The data provided thick descriptions of the links in the management component (Sections 4.3.2 & 4.4) and phases of management that explain the management mechanisms used to integrate sustainability processes (Figure 2.7). The study described the relationship between these mechanisms (Table 4.3) and how they determine low to high levels of sustainability activity (Table 4.4).

As the sector continues to develop sustainability, it faces three key issues - understanding sustainability across the supply chain, putting plans into practice; and scaling-up sustainability. These issues are insightful to the theoretical development of this research project as they illustrate the 'real life' manifestation of how organisations are managing sustainable supply chains. Furthermore, these issues meet the requirements of the SSCM process model – alignment, implementation and maintenance respectively. To address these, each organisation has developed a strategic response. This allowed the comparison of embedded units of analysis required to examine the theoretical concepts established in Section 2.3.2 of the Literature Review and developed into a conceptual framework (Figure 2.7). Findings from the study of commercial partners show that each company has developed its own style of practice based on organisational orientation and network structure. Therefore, the subsequent analytical chapter follows a theory-building logic, consistent with an inductive study. It examines the thematic elements – principles, processes and practices – through the theoretical concepts of organisational orientation and stakeholder network theory to discover any patterns and relationships in the findings presented.

CHAPTER 5 ANALYSIS AND DISCUSSION

5.1. Introduction

The purpose of this chapter is to analyse and discuss the findings using the theoretical concepts, set out in the synthesis of the literature review. This research is an effort to provide a methodical structure to explain the diversity of approaches to SSCM. The global chocolate sustainable supply chain network is discussed in three parts: Section 5.2. *Principles*, Section 5.3. *Processes* and Section 5.4. *Practices*. From this analysis, theoretical propositions, a model of business processes and typology of practices, respectively, are developed to explain how sustainable supply chains are managed. From these constructs, a conceptual framework is created in Section 5.5. Case study findings and analysis produced a number of insights into SSCM, which offer the potential to develop our understanding of SSCM in the context of sustainability, network structure, business processes and the management component. Each section discusses the findings in relation to the research questions and evaluates them against the extant literature.

5.1.1. Interpretation of Case Study Findings

Findings show that supply chain partners have their own conceptualisation of sustainability, which influences their style of management and how they interact with each other. This study examines these responses systematically using the research questions as an analytical framework (Table 5.1). A claim of the theory proceeds from each section, asserting the theoretical concept that explains patterns within this theme and relationships with other themes. The issue between the theme and theory explains the objective of the analysis (Table 5.1). Each theme is considered in the context of the case. From the analysis of the fieldwork, theoretical constructs within the conceptual framework are created. The constructs describe the patterns and relationships among principles, processes and practices.

Table 5.1: Analytical Framework for Methodologically Answering the Research Questions

Thematic element	***Analytical objective***	***Analytical outcome***
Section 5.2. *Principles*	The objective of analysis is the development of theoretical propositions that answer *Research Question 1.1* and, in part, *Research Question 1.3.*	Sustainability principles are examined to understand to understand to what extent and in what way these are related to SSCM (*Research Question 1.1)*. In doing so, it provides theoretical explanations of mechanisms in the relationships between principles, processes and practices (*Research Question 1.3).*
Section 5.3. *Processes*	The objective of analysis is the description of SSCM business processes as objects in the conceptual framework	Analysis of the empirical data provides a description of the key business processes organisations have commonly developed to manage supply chains sustainably (*Research Question 1.2)*. An in-depth analysis provides thick descriptions of how these processes are managed in practice, which reveals patterns and relationships within the themes that are explained theoretically (*Research Question 1.3.).*
Section 5.4. *Practices*	The objective of the analysis is a typology of practices based on an understanding of how processes are managed in practice based on the variation of principles that in part answers *Research Question 1.3.* In conclusion, the outcomes of the analysis are constructed into a conceptual framework (*Research Question 1.3.*).	This section examines the interrelated elements of the SSCM Framework through the lens of SNT and the theoretical propositions set out in Section 5.2 (*Research Question 1.3.)*. This produces four categories of practice archetypes – optimal, instrumental normative and rudimental. Each has a typology that explains how the elements behave: - Sustainability in terms of orientation - Network structure in terms of density, centrality and clustering - Business processes and managing relational and structural links in terms of the supply chain activities that characterise how they are managed, such as the arc of integration, phase of collaboration, governance model, type of response to stakeholders, level of embeddedness and focus of links

5.2. Principles

The case illustrates how in order to manage a sustainable supply chain in practice it is contingent on the stakeholder networks having an understanding of their own (organisational orientation) sustainability principles and those of their network members (network orientation).

The Claim

How sustainability is conceptualised by network stakeholders is a plausible mechanism which determines how sustainable supply chains are managed.

In Section 5.2.1. sustainability principles are examined through the theoretical lens of organisational orientation. How sustainability is conceptualised can be termed as *sustainability orientation* and described theoretically as a spectrum of principles ranging from ego- to eco-centric. This conceptualisation is captured in the degree of organisational orientation towards sustainability. In practice, this is actualised in the business model, which interprets real-world issues in the unique value proposition of the company. The business model offers the rationale of how the company creates, delivers and captures value in the real world and interprets this value in the orientation of the organisation strategically and structurally. Thus, all management activities are an extension of the business model.

In Section 5.2.2. sustainability principles are examined through the theoretical lens of SNT. Findings show that in order to be sustainable organisations must collaborate with multiple stakeholders. Therefore, companies need to take into consideration the stakeholder network and how it is orientated towards sustainability. The company can then determine its position in the network and how it influences and is influenced by network orientation and responds to stakeholders within. In SSCM, partnerships occur at two levels in the network: (1) collaboration at a supply chain level, and (2) concurrence at a sectoral level. These partnerships result in different styles of practices depending on how the organisation is positioned in the network, and at what level, to influence and be influenced by network stakeholders.

From the examination of principles, theoretical propositions emerge based on how principles are captured in a spectrum of sustainability orientations (Section 5.2.3). Sustainability orientation occurs at two levels in SSCM: the organisation and the network. These interdependent entities determine the sustainability orientation of the supply chain and how it is managed in practice.

The Issue

To achieve these objectives requires an understanding and capacity to manage sustainability impacts within the organisation and across the network. At an organisational level, this requires organisational re-orientation towards sustainability. This necessitates the company to re-evaluate its business principles and business model. However, no matter what direction a company is orientated – ego- or eco-centric – each paradigm has issues. Ego-centric orientation is not conducive the ideal system of holistic integration and it is

resistant to stakeholders. Eco-centric orientation captures sustainability and stakeholder value but requires a fundamental change in economic values. At a network level, due to the scale of these issues, the solution requires shared responsibility and collective action. This extends collaborative ties, not only with one's supply chain partners but also with potential partners - commercial and non-commercial, competitive and non-competitive. Partnership requires a shared vision. Research indicates that companies have different sustainability principles and priorities. This section examines how sustainability is conceptualised across the sector and the issues linked to causes of behaviours.

To understand and explain this phenomenon, two theoretical lenses are applied to the units of analysis:

- Organisational orientation theory to understand the commercial company
- Stakeholder network theory to understand the network, which is the gestalt of commercial companies and non-commercial partners.

5.2.1. Application of Organisational Orientation Theoretical Lens

Findings from the case study indicate a range of business models based on how sustainability is conceptualised (Section 4.3.3 and each of the commercial companies presented in Section 4.4). In order to explain this phenomenon, organisational orientation towards sustainability explains the logic of how a company determines sustainability value.

Competing Economic Paradigms

Increasingly, the sector is experiencing challenges between old and new business models based on economic paradigms and sustainability principles. Varying perceptions and approaches about how to address these issues include a spectrum of business models based on different principles. A business model "*refers to the logic of how a company does business and describes how it captures, creates and delivers value*" (Yang *et al.,* 2017:1795). Bocken, Short, Rana and Evans (2014) describe a business model as the means by which a company defines its competitive strategy through its value proposition, creation, delivery and capture. They provide a comprehensive list of sustainable business model archetypes all based on principles of TBL. However, findings from this study on varying sustainability principles (which include varying theoretical economic approaches) suggest that not all Bocken et al.'s models can be based on TBL rationale.

All business models in this study captured some aspect of responsibility. However, on further examination patterns occur. Depending on the principles, a company captures sustainability value in its business model based on its economic principles and orientation, and who the company creates value for, i.e. shareholders and stakeholders. As such different types of business models exist. Alter (2007) describes those with mixed motives towards social and economic value creation and stakeholders and shareholders respectively as *hybrid organisations.* Alter (2007) captures the sustainability spectrum of business models from social sustainability to economic sustainability (Figure 5.1). There is theoretical concurrence between Alter's conceptualisation of the sustainability spectrum and that of this study, whereby social sustainability infers eco-centric behaviour and economic sustainability infers ego-centric behaviour. While this model is useful in its typology of category descriptors, it does not capture the breadth of business models within each category that this study has revealed. Findings indicate that there are profound ideological differences between the business models to the right of Alter's spectrum, i.e. economic sustainability, and those to the left, i.e. social sustainability. This study suggests two distinct categories: capitalist and alternative economic models, respectively.

Figure 5.1: Spectrum of Hybrid Organisations within the Sustainability Spectrum

(Source: Alter, 2007:14&15)

Capitalist versus Alternative Business Models

Many of the dominant business models analysed operate within the economic sustainability category. Dominant business models are those considered to hold the locus

of power and influence in the network, i.e. Mondeléz, Unilever, Mars, Danone, Tesco, M&S and Amcor. The exceptions to this finding re the Co-op and Colcocoa, which represent alternative economic paradigms and business models. Under the hegemonic capitalist economic paradigm, these range from orthodox neoclassical economics to business models that are producers in the emerging new capitalism paradigms (Freeman, 2017). Consistent with Alter's spectrum, these range from ego-centric business sustainability models that create shareholder value and can be resistant to stakeholder value, to mixed hybrids of sustainable business models that are more eco-centric and increasingly receptive to stakeholders (Figure 5.2).

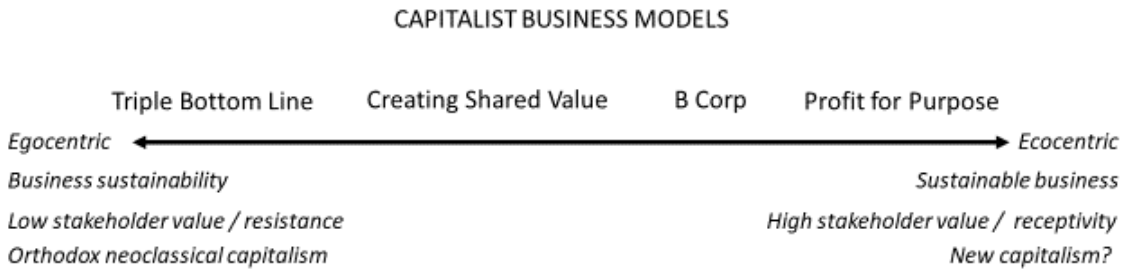


Figure 5.2: Types of Responsible Capitalist Business Models

The business models found in this study reflect a spectrum of principles ranging from the triple bottom line (TBL), creating shared value (CSV), B Corp and Profit for Purpose models, looking to innovative within the system. Within this domain, Johnston et al. (2007) consider this a perversity in which the traditionally defined 'economic growth' perpetuates the old economic model and, while opportunities present themselves, becomes an oxymoron of its progenitor term 'sustainable development'. This issue is most obvious at a procurement level. Symptomatic of neo-classical economics, there is an inherent tension here as this economic system has squeezed margins upstream in commodity markets. The living wage is considered particularly problematic in this market-based system.

Whereas, alternative business models are based on different values and beliefs as to how the economy should organise itself. They include Value at Source, Fair Trade and Co-operative principles. This list is not complete as it only considers the models observed in this case study, as follows:

The Triple Bottom Line - The triple bottom line (TBL) model is an accounting framework developed by Elkington (1997). It expanded shareholder value to stakeholder value. It evaluates business performance as impacted by and on sustainability. Companies, such as

Mondeléz, use this framework as a baseline for all sustainable activity, with all the companies reviewed have integrated sustainability into their core business operations. However, limitations have become evident as it is more compatible with the conventional global economic paradigm, weighing environmental and social criteria against profitable growth criteria that is creating inherent tensions.

Creating Shared Value - The creating shared value (CSV) approach was introduced by Porter and Krammer (2011). It is based on the premise of shared economic value along the supply chain by addressing inequalities. Companies such as Ferrero, General Mills and Nestlé business model is based on creating shared value. Other companies, such as Olam, are integrating this approach across business functions to form a cohesive organisational orientation. However, on closer scrutiny, these companies place emphasis on environmental and social dimensions rather than economic.

B-Corp Companies - Corps, an acronym for 'benefit corporation', are for-profit companies certified by B Labs to meet social and environmental performance, accountability and transparency standards even if they come at a cost to short-term financial gain. These can be classified as *social responsible businesses* (Alter, 2007). They are a middle ground between for-profit and social enterprises, whereby there is a strong commitment to social and environmental goals. Many of the larger MNCs own B Corp companies in their portfolio such as Unilever's Ben & Jerry's or Mondeléz's Green & Blacks. These are considered disruptive business models. Mondeléz purchased Green & Black as part of Cadbury. They treat it differently to their main business operations and have not integrated this brand to the same extent as other more commercial brands in the portfolio. Whereas Unilever is embedding Ben & Jerry's so that wider organisational learning can occur, helping change their core business model and assess how to scale-up this model to MNCs. It is considered a vehicle for driving and changing that company culture and making a step-change to a sustainable business model. MNCs such as Unilever and Danone are forming partnerships with B Lab to explore scaling-up and certification opportunities.

Profit for Purpose - There is a range of companies who are exploring more ethical and responsible business models. Within Alter's spectrum, these range from social responsible businesses to social enterprises. These businesses are at the frontier of business model innovation and capture the zeitgeist of new capitalism (Friedman, 2017). Practitioners

describe how companies are led by a sustainability mission whereby the stakeholders (including the environment) are the beneficiaries (French, 2016).

This model extends the stakeholder value to fully and equitably benefit people, planet and the business. It is a maturation of the TBL model. If the TBL model represents business responsibility, the 3 P's model is along the spectrum of shareholder value and represents sustainable business models. Organisations, such as Unilever and M&S, are at the forefront of this vanguard. They are looking for a future sustainable business model that is profitable to all stakeholders. While Olam is looking to "*ensure that profitable growth is achieved in an ethical, socially responsible and environmentally sustainable manner*" through their responsible business model (Olam, 2015:15). Barry Callebaut is looking to create a step change in their business model and has 100% sustainable ingredients by 2025, stating "*Without sustainability, there cannot be growth*" (Barry Callebaut, 2017).

Co-operative - There are seven co-operative principles that guide the co-operative movement in how to organise as a fair and better way of doing business. These are aligned with values as to how stakeholders are treated. Co-operatives can form as worker, producer, or consumer cooperatives, such as Colcocoa and Kuapa Kokoo a cocoa farmers producer and workers cooperative and The Co-operative Group (Co-op) UK grocery retailer. Waitrose is part of the John Lewis group. Though not a cooperative, it is similar in that it is a partnership with profits held in trust for the employees. As the Co-op respondent explained,

> *"Who does the co-op want to be? The co-op wants to be a responsible retailer first and foremost... If you can't sell fruit and veg because of water restrictions or biodiversity has fallen over or whatever, we're not actually fulfilling our purpose - there's no point in having a co-op. You may as well just have a pound store that's selling crisps and sweets."*

Fair Trade - Fair trade principles were founded on a social movement to help farmers in developing countries by providing a platform for them to be heard, secure their rights, and create better trade conditions. Within the movement there are many visions about how this may be done ranging from radical, left-wing organisations such as Traidcraft to the centralised Fairtrade Foundation and Oxfam closely partnering with globalised MNCs. There are thousands of organisations including producers, retailers, NGOs engaged in political debate and advocacy work, and certifiers who are all proponents of these principles yet with nuanced business models based on different values. The movement has grown in scale globally and formalised into member organisations such as FINE, an association of fair trade

networks. Other examples include Green & Blacks, Traidcraft, Fairtrade Foundation and Oxfam who engage in fair trade principles through their own business models. There are around 179,800 certified cocoa farmers worldwide who earned a Fairtrade Premium of €10.8m in 2013-14 (Fairtrade Foundation, 2017). Currently, 1,460 chocolate products are retailed with the FAIRTRADE mark in the UK, such as Green & Blacks, Cadbury, Divine, M&S, the Co-operative, Traidcraft, Waitrose and Sainsbury.

Indigenous Business Models - In this study, there were two distinct business models that were observed within farming communities in developing countries: The Prosperity and Value at Source business models. Academia and practice have explored the value of indigenous business models at the nexus of sustainable development (Banerjee, S.B., 2003; Banerjee, A, 2015; Australian Government Department of the Prime Minister and Cabinet, 2018). Indigenous business models illustrate the biases and inequalities in the hegemonic global economic system and how base of the pyramid businesses are responding to these (Banerjee, S.B. 2003; Prahalad & Hart, 2010; Alter, 2007).

The term *posterity model* was applied by the respondent to Colcocoa's unique and innovative business model. It is an indigenous, post-colonial business model that recognises the biases and inequalities in the economic system and limitations of sustainability. The respondent explained that this model seeks to deliver more than sustainability value. The company's value proposition is founded on prosperity and sustainability in how it creates sustainability, productivity, quality and happiness.

Value at Source is the most radical of all the alternative business models seen throughout the network. This post-colonial model states that the majority of value added to products should be recovered at source. It is also an alternative market-based approach, like fair trade, that captures this value in a transparent and ethical supply chain. The UK and Irish organisation, Proudly Made in Africa, is working with Traidcraft, M&S and Waitrose to provide 'processed at source' products. It works with farmers in the traditional sector and processors in the emerging sector across Africa, through the PMiA label, to improve value, quality and business opportunities for the 400+ factories across 29 countries it represents.

5.2.2. Application of Stakeholder Network Theory Theoretical Lens

Companies are gradually appreciating the depth and breadth of sustainable impacts on not just their business but systemically within the current economic paradigm. A shift in the concept of partnership, collaboration and competition is changing the paradigm of SCM. Within the requirements of sustainability, there is a maturation in understanding the necessity and capacity for collaboration.

A Broad, Simplistic Understanding of Sustainability at a Network Level

In terms of a maturation in understanding at the network level, sustainability is broadly and simply defined. The focus of conceptualisation is placed on priorities within dimensional attributes and materiality impacts rather than principles. Within this 'fundamental concepts' approach (Glavic and Lukman, 2007) there is an imbalance between the three pillars. Of the 23 company reports analysed, when they refer to 'sustainability' they are referring to environmental and social dimensions. Within these, historically, there has been a focus on addressing environmental issues. However, the caveat must be made that the main body of analysis was carried out between January 2016 and September 2017. Since then, companies have integrated the SDGs into their sustainability strategies that have resulted in nascent consideration of economic sustainable development. Before then, economic sustainability was a by-word for business and financial sustainability, conducive to the TBL model.

This broad conceptualisation allows common ground to be found among partners and alignment for collective action while allowing a localised, nuanced approach within impact areas across the supply chain. Companies are learning the value of strategic partnerships and the capacity to develop them across global networks. This is generating a range of partnerships across supply chains and the sector. These include recognised interactions such as cooperation, coordination and collaboration. A new level of social interaction and interdiscursive co-creation has emerged which shall be referred to as concurrence whereby there is a presupposition of sectoral agreement to act together pre-competitively.

Concurrence at a Sectoral Level

Understanding has evolved from a more individualistic sense of business sustainability to a broader sectoral view. As UN Secretary-General said at Davos 2016 said, "*No organisation or country can do it alone*" (Møller, 2016). By this, he was referring to the partnership

required in the transformation of the global economy to scale-up sustainability impacts that are necessary to reach universal goals.

There is increased activity in existing and new trade associations dedicated to sustainability initiatives and efforts to scale them up. Respondents reported that they align activities and resources more efficiently and deliver impact at scale through shared responsibility and collective action. This is resulting in strengthening the sector, particularly for downstream MNCs. They are leveraging scale, resources and reputation as leaders, visionaries and innovators, with a proven track record to manage risk and drive their agenda. These are plausible mechanisms in mobilising the critical mass required to make their sector healthier. It is also resulting in their principles of sustainability within the hegemonic capitalist system being institutionalised.

Companies are discovering the advantage of being perceived as leaders among their peers. It is important to the company that consumer and industry see them as driving an agenda, and for them this means sustainability. Thus, trade associations are an important mechanism for putting them in a position of power and influence, not only to drive the sustainability agenda but also to influence other agendas i.e., shaping where the market is going.

There is evidence that those experienced in collaboration, and having a mature understanding of what is required, are focusing on sectoral level partnerships. Concurrence, whereby companies collaborate pre- or non-competitively requires a high collaborative capacity. Associations between two or more stakeholders invested in embedding sustainability range in types. There are individual initiatives such as Unilever and Danone each exploring scaling-up the B. Corp business model to MNCs with *B. Lab*, indicating a consensus in this business model for the future. There are sectoral partnerships such as UTZ and Rainforest Alliance merging to create consistency in a single sustainability standard and SAI Platform rapidly growing to 85-member companies. The leading cocoa and chocolate companies are strategically forming agreements for sustainability stewardship programs under the WCF. Its *Cocoa Action* represents ten of the largest traders and manufacturers to work with governments of origin and key stakeholders to "*catalyse efforts to accelerate sustainability in the cocoa sector*" (WCF, 2016). This is further evidence of network clusters institutionalising principles that perpetuate the hegemonic economic

paradigm. Each of these organisations, and their members have their own sustainability principles and value propositions yet find ways to collaborate and concur collectively.

Collaboration at a Supply Chain Level

There is a consensus that a holistic view of SSCM is required. However, respondents explained there was a need for greater horizontal integration between upstream and downstream, and vertical between business functions to provide this.

When analysing primary and secondary data there are system imbalances and an incapacity to adhere to the tenets of TBL and a holistic view. Companies generally refer to upstream activities with a strong environmental focus, particularly sourcing and procurement. Upstream is more developed and has greater levels of experience and participation. This is due to the higher levels of impact, risk and public scrutiny. As a result, sustainability initiatives are maturing as programmes come of age and move beyond donor dependency into resilience. However, downstream customer and consumer-facing priorities have a different perspective and language. With regard to consumers, it is about nutrition and health, and with customers, it is primarily about logistics, packaging and waste. Therefore, how sustainability is conceptualised among partners along the supply chain result in different priorities.

This disparity between upstream and downstream challenges the holistic and fully integrated view in practice. This illustrates the imbalance between the three pillars. These exist because activity focuses on high-impact areas whereby environmental impacts are easier to assess than a social one. It also creates challenges in siloed thinking at an operational level as individuals are focused on their own area of activity. An extended holistic, end-to-end conceptualisation of the supply chain does exist at a strategic level. Dedicated, expert staff have the mandate to consider the sustainability of the whole supply chain. They have a holistic, strategic overview which does not exist within business functions. Across business functions and industries, this dichotomy of understanding is inhibiting full integration. Poor communication limits shared knowledge, awareness of activities and cross-function learning. Furthermore, different priorities and levels of integration in distinct business functions vary according to how sustainability is understood and the impact it has on that particular function.

There is a prevalent mindset that sustainability comes at a cost with different levels of willingness to pay, especially if companies are not directly accountable. There are inherent

tensions between orthodox economic theory and, thus, sustainability is restricted by commercial decisions. Organisations have developed savings and efficiencies across supply chains that improve sustainability inexpensively or deliver a profit. These are referred to as the 'low lying fruit' and have been readily integrated. What remains after these initiatives are the more complex; substantive programmes and partnerships that are expensive and require resource fitness. The concept of unilateral action captures the increasing awareness of systemic change in how sustainability is conceptualised at a network level. It also indicates the power of influence the network has potentially over the organisation in terms of orientation towards sustainability across the supply chain.

5.2.3. Theoretical Propositions

In support of the theoretical concepts synthesised in the literature (Section 2.4.3), it is evident that,

a) Sustainability principles influence SSCM in terms of how the supply chain is manged in practice (*Research Question 1.1.)*
b) There is a causal relationship between principles and practices (*Research Question 1.3).*

There are three causal mechanisms that generate practices out of principles: sustainability orientation, organisational orientation and network orientation. Sustainability orientation can be classified along a spectrum of principles from ego- to eco-centric. These varying principles result in a range of activities and behaviours that indicate a style of practice. The effect of sustainability orientation can be seen in the company's organisational orientation and network's orientation and how they interact with each other through network structure (Figure 5.3). The greater a company's orientation towards sustainability the more it becomes receptive to the needs of stakeholders, ultimately resulting in considering these stakeholders beneficiaries. This results in a higher level of network activity, i.e. centrality, density and embeddedness. Therefore, the following proposition is asserted,

> *P1. Sustainability orientation determines organisational orientation and network orientation.*

Organisational orientation determines the sustainability value proposition based on how the company conceptualises sustainability. This conceptualisation is based on its principles

and priorities for strategic action. This orientation manifests in a company's structure, strategy, culture and business model. These, in turn, determine the level of activities in the SSCM framework management model, which denotes a style of practice. Therefore, the following proposition is asserted,

> *P1a. Organisational orientation determines the extent to which an organisation engages with sustainable supply chain management, which in turn will affect the sustainable supply chain orientation.*

From a network perspective, sustainability orientation also determines how the supply chain is managed. Network orientation is based on how sustainability orientation is conceptualised and negotiated among stakeholders. How they find concurrence and alignment across the supply chain results in sustainable supply chain orientation. Therefore, the following proposition is asserted,

> *P1b. Network orientation determines the extent to which a network engages with sustainable supply chain management, which in turn will affect the sustainable supply chain orientation.*

A synthesis of Propositions 1b and 1c leads to the conclusion that,

> *P1c. Organisational orientation and network orientation determine sustainable supply chain orientation.*

Furthermore, Brown & Duguid (1991) explain that communities of practice form around orientation. Therefore, the following proposition is set forth:

> *P1d. Sustainable supply chain orientation determines how sustainable supply chains are managed in practice.*

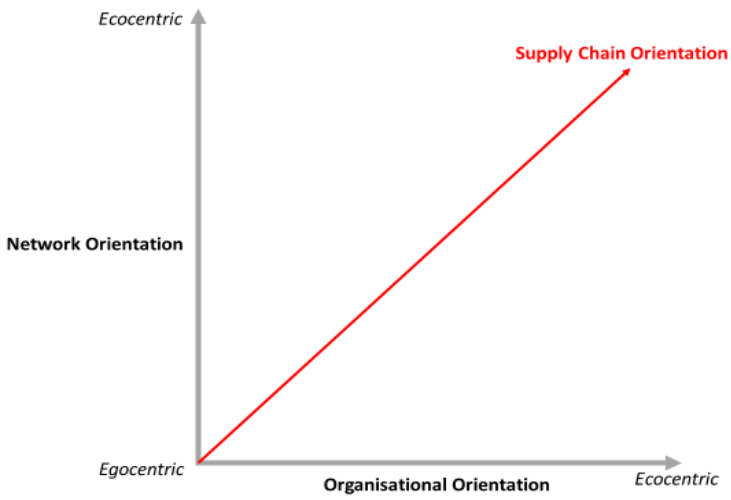


Figure 5.3: Sustainable Supply Chain Orientation Theoretical Framework

Sustainable Supply Chain Orientation: Interdependence and Power

Sustainable supply chain orientation is the predisposition of the supply chain towards sustainability that manifests in the principles, processes and practices at organisational and stakeholder network levels. This concept was described in Research Proposition P1d. The eco-centric paradigm posits that a company and its network stakeholders have varying sustainability conceptualisations and the more eco-centric an organisation is the greater the consideration of stakeholder needs (Sections 5.2.3 & 5.4.1). The more companies consider the needs of stakeholders, the more sustainable the supply chain. The paradigm contributes to our understanding of 'organisational orientation' literature offering an explanation on "*what and who it takes to get a job done*" (Brown & Duguid, 1991:41).

In practice, sustainability is a competitive advantage, offering strategic value created in the business model (Section 4.3.3). Due to increased mutual dependency, value resides and is to be leveraged in the collective – be it the supply chain, the network, or the economic system (Section 5.2.2). This was conceptualised in the literature review (Section 2.2.2. *Power*) as power as a possession among the organisation, its network of relationships and the network as a whole. This dichotomy brings into relief the issue of dependence asymmetry and joint dependence. It is in a company's interest to possess the power to influence the behaviour of stakeholders it is dependent on (Section 4.4). This study concurs with Maloni and Benton (2000), in that a careful and controlled use of power that leverages expert and referent power promotes supply chain integration. This thesis extends our understanding within the field of sustainable integration, as exemplified by optimal and instrumental archetype organisations who have expert knowledge and experience and are considered leaders who others wish to mimic (Section 5.4.1).

Treated in this way, this is what was described in the literature review as power as a possession that an actor leverages to secure behaviour (Knights, 2009). As such, the eco-centric paradigm recognises SSCO as a trade-off between individual orientation and consideration of stakeholder needs depending on the level of mutual dependency. For example, within cocoa, there is a high level of mutual dependency because, in order to address the criticality of volume, security and stability of supply, collaboration and concurrence is required (Sections 4.2 4.3 & 5.2.1). In this instance, power is used as an isomorphic force to standardise principles, processes and practices.

This perspective dominated the extant literature on power in SSCM. However, it became evident from the empirical findings that this view was limited. This is what Luke's described as a conceptual shift in understanding asymmetric power relations or 'power over' in his earlier work (1974) to his second edition (2005) consideration of 'power to' that represents his changed thinking over 30 years. For example, Touboulic et al. (2014) consider power as a mechanism to achieve sustainability goals, ably demonstrating how power is a mechanism to influence practice. They encourage critical engagement in the topic, yet they do not critique the principles upon which those goals are founded. They sustain the dominant 'dimensional' and TBL discourse on sustainability and are proponents of Carter and Roger's (2008:368) definition (a critique of which has been provided in Section 5.2.4 *Moving Beyond Strategic TBL Integration to Embedding Sustainability in the Business Model*). This perspective presupposes that companies working towards sustainability goals as a good thing, as can be seen by the actions and rhetoric of prominent company leaders. It appears to provide a moral high-ground that some are sensitive to. M&S consider their role as leaders an ethical burden of responsibility they take seriously. While others are critical of, such as Co-operative, Oxfam, Traidcraft and Cocoa Barometer. Thereby, the findings of this study draw on the rationale of Foucault (1980) to explain power as both a productive and destructive force.

It is in the interest of a company to exercise its power to create value in its stakeholders by securing their interests (Sections 4.3.3, 5.2.1 & 5.2.2). To dominate them is counter-intuitive in this exercise. This 'resistance' practice traditional in capitalist economics is unhelpful in sustainable business models; therefore, making both the practice and system untenable. It also raises the question of subjectivity on power as to whose principles are positive and whose negative – neo-classical, new capitalism, fair trade, co-operative, value at source, shared value, etc. – and which system will prevail.

The literature (Section 2.2.2. *Power*) identified another way to consider power is as a determining force that resides in the system (Knights, 2009). It is important to consider the perspective of power and domination in social relations (Foucault, 1980; Lukes, 2005). Studies on SSCM traditionally consider overt power as an isomorphic mechanism for consent or compliance (Drake & Schlachter, 2008; Zhu et al., 2013; Touboulic et al., 2014; Marshall et al., 2015). This theme will be discussed further in Section 5.4.4. *Leveraging Isomorphic Mechanisms*. However, in consideration of Lukes (2005) two-dimensional

perspective, whereby contentious issues are repressed as part of a decision-making and agenda-setting conception, was demonstrated by the unwillingness of more ego-centric commercial company respondents within this study who were reticent to engage in politically topical issues. This was also illustrated by the high levels of centrality by those who wish to be considered leaders, and the institutions and processes they create and participate in to set their agendas. Regards this third dimension of ideological hegemony, it has been difficult in this study to 'prove' what does not occur and, furthermore, justify their selection given the researcher's bias and limitations of the scientific paradigm. Polsby recommends seeking out "*those outcomes desired by a significant number of actors in the community*" (1963:96). Therefore, 'other' voices take on a significant import within this research. Furthermore, the intent of this research project was not to select one issue over another. Rather the objectives were to establish that there are different perceptions and preferences, that these create power differentials and that these lead to different styles of practice – hence the conceptual framework, practice archetypes and their taxonomic typology (Section 5.5).

5.2.4. Alignment with Existing Literature

In order to explore how the concepts of sustainability and SCM merge (*Research Objective 1), Research Questions 1.1* asked, *to what extent, and in what ways, are sustainability principles related to SSCM?* Several studies have explored the impact of sustainability on SCM. There has been a comprehensive body of knowledge from GSCM-focused studies by authors such as Handfield et al. (1997) Srivastava (2008) and Sarkis et al. (2011), and SSCM research by Carter and Rogers (2008), Seuring and Müller (2008b), Pagell and Wu (2009) and Beske and Seuring (2014) among others. This thesis does not provide any further definitions of SSCM, as the field is already highly prolific (Ahi & Searcy, 2013). Instead, it seeks to understand the consequences of this proliferation and to build on the body of knowledge by addressing some of the issues arising from these conceptualisations to strengthen our understanding.

The Ideal System is a Misnomer

It is in the interest of powerful focal companies, perpetuating the economic order which they have capitalised on, to not fully integrate sustainability. Given the critique of the 'ideal sustainable system' in its failure to fully integrate all three dimensions of sustainability

(Sections 2.2.4 & 5.2.2), and the economic political and ethical values upon which this social system is organised (Section 5.2.1), it is argued that this attitude is in the interest of powerful focal companies driving their own agenda as raised in the literature (Section 2.2.2) and captured in Research Objective 4 and Research Questions 1.4. This attitude has been perpetuated by academia and its lack of critical examination of the economic, political and ethical values which inform the system.

Moving Beyond Strategic TBL Integration to Embedding Sustainability in the Business Model

The TBL model has been the nexus of SSCM research in understanding how sustainability merges with SCM (Section 2.2.4). Carter and Rogers (2008) ubiquitous SSCM model considered sustainability in the context of strategic integration, whereby sustainability is a strategic goal. However, research indicates that practitioners are moving beyond this conceptualisation. As understanding has matured, sustainability is increasingly being embedded rather than merely integrated into companies, affecting the core principles of how business gets done (Sections 4.3, 4.4 & 5.2.1). This is an inevitable conclusion of business as usual not being sustainable. As a result, a variety of innovative business models are emerging that take TBL as their genus but go beyond accountancy constraints to consider stakeholder value to varying degrees (Figure 5.2).

This is something Carter and Rogers (2008) predicted. They recommended further exploration into the beliefs and motivations of organisational orientation in SSCM while alluding to the potential variability of TBL integration due to facets such as culture, risk and capturing strategic value. This study has done exactly that and demonstrated that not only is the TBL integrated to varying degrees but that businesses are looking beyond it due to its neo-classical accountancy-based limitations. A range of responsible business models is emerging that can be conceptualised as a spectrum of ego/eco-centric orientation (Sections 5.2, 5.4 & 5.5). The further along the spectrum a company orientates itself, then the more deeply sustainability moves from being a strategic TBL integration goal to a core facet of the business model and corporate philosophy (Figures 5.7; Table 5.11; Section 5.5). Therefore, in response the Carter and Roger's (2008) call for scale to measure the TBL, this thesis has addressed this, in part, by developing a classification of business models, ranging from TBL to Profit for Purpose, using the ego/eco-centric orientation theory (Section 5.2.1). They capture the range of factors that determine the value propositions of each of the

sustainability dimensions and how they interact systemically. The most notable of these are the value propositions for sustainability and stakeholders. However, what Carter and Rogers (2008) did not predict was how the economic paradigm which the sustainable business model is founded upon as a rationale for business would alter as a result of the tenets and principles of sustainability.

Hegemonic Social Discourse in Business Models

The work of Lubin and Esty (2010) was used as a guide to explore how value is created in business models (Section 2.4.3). The reason supply chain value creation models were identified in the literature was that organisational orientation was a sensitising concept to guide the in-depth empirical study that was idiographic in nature. Organisational orientation guided the researcher to the themes of business models and value propositions. It was indicative from the literature that styles of practice emerge as a result of stages of value creation towards greater sustainability orientation, i.e. eco-centricity. This concept was supported empirically. As one manufacturing respondent explained, SSCM has now become so embedded in the business that sustainability is considered core to the business model to and the supply chain is seen as an extension of this model.

The model identified four stages of value creation in capturing the *eco*-premium. However, when this model was examined empirically in this study there were a couple of constraints that required consideration. Firstly, this model is a retrospective one in that it considers what business have learnt from previous megatrends. At face value this is not a limitation, however, it lacks critical thinking. The article uses text, such as competitive advantage, mastering, winners, outperforming competitors, creating the impression of dominance. Furthermore, the article is coming from the perspective of orthodox classical economic theory hegemony, learning from it and innovating. It does not consider alternative business models. Their history and discourse are rooted in the traditions of Naisbitt (1982) and the Northern American business system that has dominated management studies (Gold & Schleper, 2017). Perhaps because of this worldview, the second consideration is that the model creates value *from* environmental pressures and not stakeholders. The authors do consider the importance of goal alignment and capturing value *for* stakeholders. Perhaps this blind spot exists because there are not overt lessons to be learnt about stakeholders from previous organisational responses to megatrends.

Turning to the SSCM literature (Section 2.2.4. *Business Sustainability*) provided insight into capturing stakeholder value as it revealed this hegemony in orthodox business thinking whereby stakeholders are treated instrumentally. However, it appears from the empirical findings of this study that two streams of research are diverging from this point. One is the development of business models under the conventional economic orthodoxy from which new paradigms are emerging such as 'new capitalism'. This corresponds with the relevancy of the conceptual framework to focal companies and the propensity of the range of innovative and emerging responsible business models under the capitalist paradigm (Figure 5.2) to conform to its rules and norms. Alternatively, there appears to be a whole body of work waiting to be developed further in alternative business models, especially from the developing world. This is substantiated empirically by the cases of Traidracft, Value Added Africa, Colcocoa and existence of other types of business models such as Madécasse chocolate and vanilla company observed in this study. There is evidence also emerging from other sources, such as new Chinese business models for sustainable development (Birkin *et al*., 2009), the potential of indigenous business models for economic transformation (Banerjee, A., 2015), and the lessons to be learnt from indigenous peoples, such as the principles of Māori culture and business, discussed in postmodernism and decolonial literature (Gallhofer & Chew, 2000). Birkin, Cashman, Koh and Liu raise an interesting point when they explain that the Chinese worldview is "*masked by their enthusiasm for free-market*" (2009:67). It acknowledges that to be economic world players, governments and organisations must adopt hegemonic neoclassical economics methods, however, these can be shaped by alternative cultural values to the norms of western classical economics. At the very least, it indicates future research into alternative business models and how they can shape our understanding of sustainable development.

Why a Failure to Consider Principles Leads to an Economic Blind Spot

Research findings have illuminated further insights into the tenet of the sustainability as an ideal system that to be realised should be fully integrated and holistic (Sections 2.2.4 & 5.2). Companies generally interpret the term 'sustainable' as environmental and social. This limits the depth to which it is integrated within the company and breadth across the supply chain, and therefore hinders its full potential as an ideal system (Section 5.2.1).

This research questions how sustainability is conceptualised both in academia and practice, such as the TBL model, as it often neglects the economic dimension. When it is

considered it is generally in reference to the economic sustainability of the business rather than any notion of sustainable development principles (Section 5.2.2). This creates what Carter and Rogers refer to as a micro-economically balanced system that is questionably "*good*" in how it integrates all three dimensions (2008:369). There is nothing new in this knowledge, rather it endorses the work of Seuring and Müller (2008), Taticchi et al. (2014) and Wolf (2011) – all of whom discuss the limited capacity to integrate all three dimensions of sustainability. Wolf (2011) recommends the consideration of both the core values of sustainable development and the diversity of stakeholder expectations in helping understand practices. The materiality assessment matrix is indicative of practitioners becoming more considerate of its influence on stakeholders (GRI & Robecosam, 2016). The engagement of business with the SDGs and Paris Agreement and maturation in understanding have also been catalysts for a more holistic consideration of the economic dimension. However, within the SSCM scholarship, there are still limitations. Seuring and Müller (2008) and Taticchi et al. (2014) do not consider the founding principles of sustainability actions beyond a basic lip-service to sustainable development, as argued by Walker and Jones (2012), but in academia too. This indicates a bias in the interpretation of economic sustainability as being 'profit', financial or business sustainability, rather than the economic sustainability of stakeholders.

This issue is pertinent to those vulnerable as a result of the dominant economic system based on globalisation and capitalist principles. This consequence can be argued as a result of the constant appropriation of 'sustainable development' through the business sustainability paradigm of the dominant TBL model – the two apparently ubiquitous in the literature without any critical consideration of the principles or ethical consequences. So, rather than there being a deficit of social dimensions, as put by Seuring and Müller (2008), Taticchi et al. (2014) and Wolf (2011), it is argued in this thesis that there is a fundamental blind spot where the economic dimension is considered, especially by those who purport that SSCM is derived from stakeholder requirements. While this thesis does not adhere to Norman and MacDonald's (2004) critique of TBL's objectives, it does concur that the 'academic lacuna' in critical examinations of this model is of concern.

Ethical and Political Implications for Stakeholders in how Sustainability is Conceptualised

The concluding *Research Question 1.4* and *Objective 4* (Section 3.2) were designed to consider the ethical and political implications of the research contributions. This requires

an understanding of power as a 'determining force', residing in the dominant system. In this study, it is obvious that there is open political conflict between economic systems. Furthermore, in an examination of power bases (Maloni & Benton, 2000), there are high levels of legitimacy implied by the action of 'being sustainable' without sufficient critique in academia of the focal company's natural right to influence principles and practices, even if they are considered optimal or desirable. What is emerging systemically is a high level of expert and referent value, as all stakeholders who are engaging in sustainability issues are in some way or another at the vanguard of this new frontier.

A crisis in the capitalist paradigm is occurring as a result of sustainability. This meets Lukes (1974) two counterfactual conditions that prove a successful exercise of power has occurred. Namely, there is a political conflict between sustainability and orthodox economics (Section 5.2.1). Without the presence of sustainability, business as usual under this paradigm would continue. With sustainability, the old, hegemonic neo-classical paradigm is becoming redundant. Therefore, an exercise of power has occurred in how sustainability is conceptualised in relation to the paradigm and by whom. The power of sustainability on the economic system is great enough to effect systemic change (Section 5.2.2). A new economy is emerging (Freeman, 2017). How sustainability performs is determined by the actors who conceive of it. Powerful, focal companies have exercised high levels of non-meditated power (expert, referent and legitimate) and influence, often in close multi-stakeholder relationships to sustain their economic rationale (Section 5.2.2). Power bases are exercised to manipulate less powerful stakeholders in the supply chain and the configuration of the system to align with the powerful actors' agenda (Sections 4.3, 4.4 & 5.4).

What is evident from this research project and previous studies (Glavic & Lukman, 2007; Johnston *et al.,* 2007; Boons *et al*., 2012; Ahi & Searcy, 2013) is that there is not a homogenous and universally agreed on conceptualisation. This study highlights the political-economic perspective (Section 5.2.1). Indeed, the variety of business models, particularly those under the hegemonic paradigm and those seeking a "*more responsible capitalism"* illustrates this variety (Freeman, 2017:462). However, what the research reveals is that a more responsible form of capitalism, and how it conceives sustainability, is a more likely outcome of systemic change then any of the alternative economic theories. A possible explanation is that the centralised role of powerful focal companies in the

system that acts as a determining force and the hierarchy of economic theories they represent (Section 5.2.2). It is too early for sedimentation to occur due to the nascent nature of the field (Laclau & Mouffe, 1985), but left unchecked runs the risk of concepts becoming naturalised as is the case with Carter and Rogers' definition of SSCM. Perhaps it is time to revisit alternative economic theories, rather than incumbent theories that built this system, and in doing so confronted us with the unsustainable problems we are now seeking an alternative paradigm and solution to.

Eco-centric Theory

This study started off with the theoretical proposition that there is a spectrum of values between ego and eco-centric orientation towards sustainability. A theory of eco-centrism has developed having examined this proposition conceptually (Section 2.4.3. *Sustainability* Spectrum) and empirically (Sections 5.2.1, 5.2.3, 5.4.1, 5.4.2, 5.4.3). This is indicative of a paradigmatic shift currently occurring in organisational and management studies in response to sustainability as a megatrend as argued in the literature review (Sections 2.2.4 & 2.4.1). Within the existing literature, the eco-centric paradigm has several assumptions that contradict the neoclassical economic paradigm by drawing on the work of seminal scholars and introducing new concepts. There are limits to economic growth (Gladwin et al., 1995; Freeman, 2017). The organisation is responsible for all stakeholders affected by it (Freeman, 2010). It is receptive to stakeholders (Section 5.2.1). It considers the heterophilous sustainability principles of its stakeholders (Rogers & Shoemaker, 1971). It captures value in sustainability and stakeholders (Sections 4.3.3 & 5.2.1; Figure 5.2). It extends our economic horizon beyond business sustainability to a world level (Naisbitt, 1982). It requires a shift away from the anthropocentric bias in that the unit of sustainability is the stakeholder as a reference for conferring value – including the planet, all its inhabitants and its ecosystems, rather than the human being (Purser et al., 1995). Eco-centric theory can be defined as the degree to which an organisation considers sustainability and stakeholder value, and in doing so considers the principles, needs and influences of heterophilous stakeholders.

The intent of this definition is to capture the economic rather ecological inflexion of the term. This thesis follows Gladwin & Krause's (1995) reasoning of 'sustain-centric economics' that seeks to constrain the detrimental effects of neo-classical economic value-added activities, growth and inequality. It also follows Scharmer and Kaufer's (2013)

economics logic of a shift from ego-system to eco-system economics. This concept captures the original definition of economics – '*Oikonomia'* meaning 'household management', derived from the root *Oikos* meaning the 'whole house'. Perhaps in its ideal state, eco-centrism will present a perspective that is "*most congruent with the requirements of sustainable development*" (Gladwin et al., 1995:894). However, in practice, it represents a range of diverse emerging business models and economic systems that are not all congruent with sustainable development and instead are ego-centric in their need to sustain their business and the system that enables it. Therefore, it considers the holistic sustainability of the whole system of which the organisation is a stakeholder.

A Critique of Philosophical and Methodological Biases in Conceptualising Sustainability

In SSCM, there has been a critique of a positivistic philosophical and quantitative methodological bias and its implications in garnering a particular theoretical understanding of research (Ketokivi & Choi, 2014; Gold & Schleper, 2017). Following the CMS logic of inquiry set forth in the methodology (Section 3.3.1), findings indicate that this has created a westernised and globalised worldview of SSCM. This research has partially addressed this gap by examining different conceptualisations of sustainability principles, often implicit rather than explicit in the economic model under which the company operates or aspires to (Section 5.2.1). This dynamic shift in conceptualising sustainability from dimensions to principles will require more qualitative-led research then the traditional quantitative methodologies that dominate this discipline. It will also require a CMS perspective, as advocated by Gold and Schleleper (2017), to critique the reification of certain principles and the concepts and values upon which they are developed. This is necessary because the definitions of sustainability are generated by asymmetric dependencies across the supply chain network, leading to reification, normalisation and institutionalisation.

5.3. Processes

This case illustrates how, in order to manage a sustainable supply chain, a set of homogenous key business processes have been identified as critical.

The Claim

In order to understand how to manage sustainable supply chains, this section defines the key processes in SSCM as strategic goal setting, redesign, governance, integration, collaboration, stakeholder engagement and performance monitoring and evaluation.

The Issue

To date, a comprehensive model of key business processes in SSCM has not been provided. This in part is due to the nascent nature of the field, however, after approximately 15 years of practice, organisations have aligned their activities to collaborate and work collectively using a set of repetitive tasks that this project seeks to formalise.

In practice, they seek to align partners goals with their own, put plans into practice and extend activities both within their own supply chains and across the sector, all indicative of an organised set of management processes. However, empirical examination of the propositioned processes identified in the literature revealed they were not sufficient. Two major changes were made to the conceptual model: strategic goal setting was expanded to strategic planning and another key process, pre-competitive collaboration, was added. Thus, the key business processes in SSCM are strategic planning, design, governance, integration, collaboration, pre-competitive collaboration, stakeholder management, and performance monitoring and evaluation. Each of these is now elaborated on.

5.3.1. Strategic Planning

In the literature, this process was defined as strategic goal setting. However, upon further empirical evidence, this process is extended to encapsulate the strategic planning process with several distinct sub-processes: impact mapping and analysis, making the business case and goal setting. This is because sustainability is integrated into business strategy (TBL model) by those actively engaged in SSCM.

A feature of strategic planning is considering it with the management model of alignment, implementation and maintenance in mind. Strategic planning has become a core process, which respondents have learnt takes time to do properly. Companies report that planning has taken up to three years, for example, *CocoaAction* took two years to understand strategic development. Therefore, seeking alignment in terms of goal setting and a shared vision with partners is critical.

Regards implementation, understanding where the greatest impact is critical. This issue becomes obvious in terms of commodities and themes and how to build the business case around certain approaches. One trade association respondent explained the necessity of building in resilience in terms of maintenance,

> *"Who would you rather sort entrust your business to? To cope with stuff, or somebody who thought about it and has got resilience design and built it in to their ways of operating? And therefore, the business case is all about that continuity of supply, in a world of increasing volatility and increasing sort of resource scarcity".*

While others, such as Barry Callebaut and M&S, think it important to consider scaling-up activity for collective action and how plans and goals can be used as calls to action. Planning also provides the framework for continuous improvement for the organisation and others to learn from.

Impact Mapping and Analysis

The strategic planning process is increasingly based on scientific data gathered from impact mapping and analysis. As a sustainability director of a MNC manufacturing brand said, "*We look to see were the biggest impacts and therefore the biggest opportunities to make a difference.*" Impact mapping includes deciding the impact areas an organisation wants to address. Often this is done thematically such as in Oxfam's *Behind the Brands* campaign which mapped 20 key raw materials and risk mapping those using the standardised WRAP tool. This is an approach which retailers have been taking, prioritising impacts by biggest product materiality volumes. To assess these impacts companies have developed self-assessment tools and surveys or used standardised models such as WRAP, life-cycle assessment (LCA) or forecasting, alongside scientific data. This is to get the measures to identify goals, build the business case, and invest effectively for impact.

Goal Setting

Goal setting is a key strategic activity. It provides the measures for performance while acting as a communication tool for creating buy-in and collective action. One of the key features of goal setting in SSCM is getting partners to agree. As one manufacturing respondent explained,

> "*Often it's about identifying the agenda. So, we don't necessarily work directly with other CGF colleagues on deforestation but by defining the agenda and agreeing on the priorities, it means that we pursue through our own engagement*

> *with our own suppliers. We might be working to an increasingly harmonised agenda. Therefore, we clearly manage all our own relationships with our direct suppliers ourselves but by being signed-up to a global agenda on deforestation it means that increasingly complex questions are being asked."*

This quote illustrates how a key process like goal setting is necessary for collective action yet allows for diverse practices depending on a company's own agenda.

Making the Business Case

The importance of building the business case is to create buy-in both within the company particularly from the executive for mandate and to mobilise activities. It is also used as a communication device with partners, again to enable buy-in and align activities. The business case provides evidence for embedding sustainability in SCM. The comprehensive case is based on drivers, scientific data and analysis of impact, potential partners, market research, economic costs and benchmarking.

The strategic planning process is closely aligned with other processes. It is important for stakeholder management as respondents explain that stakeholder input is important in trying to understand what is possible and to take action from an assured perspective. It provides the parameters for design and measures for performance monitoring and evaluation. It creates the buy-in for collaborative and pre-competitive action. It determines the level of integration, specifically where and how sustainability is integrated. It presents the business case to upper management and is aligned with governance models, providing the focus areas for policy, standards and reporting.

5.3.2. Design

There has been a growing awareness for the necessity to integrate sustainability criteria into the business processes within supply chains for a holistic, integrated view. As such, business processes are being re-conceptualised and re-engineered. Furthermore, the configuration of global supply networks is being redesigned and contracts changing to become more resilient to risk.

Re-Conceptualisation

In order to embed sustainability across the supply chain, organisations are having to reconceptualise global supply chain networks to consider sustainability structural and relational processes. They are strategically developing new frameworks that integrate

sustainability dimensions such as sourcing certified commodities, using green energy to offset carbon footprints and developing policies, standards and guidelines in terms of sustainability and ethical considerations to be integrated into operations and contracts.

Companies are also reconceptualising the supply chain, looking to form new partnerships, both individual supply chain and sectoral, especially pre-competitive. As such, all the companies analysed are designing innovative or alternative business models to respond to sustainability impacts. This means increased stakeholder value, including the needs of employees, suppliers and communities, is designed into the business models. Danone announced a similar restructuring in 2014 to manage sustainability risks and performance, continuing to scale-up their RESPECT program by 10% that year. The RESPECT program is Danone's responsible procurement program is structured around social, environmental and ethical values built into contracts along the supply chain.

Restructuring the Supply Chain Network

Companies are restructuring their supply chain network to embed sustainability. This is happening in the early development phase of SSCM and more advanced stages in scaling-up. As with reconceptualising, here too relationships and operations are adapting innovatively to integrate sustainability efficiently and effectively. For example, in 2015, Mondeléz announced a radical supply chain strategy to meet the long-term growth strategy of the company. In meeting the current challenges, they set-out to focus business model to deliver sustainable profitable growth. At the supply chain level, this has meant transforming manufacturing processes, re-engineering lines, and restructuring the end-to-end network as part of a restructuring program, to the cost of $3.5 billion, still in action.

Business Process Re-Engineering

Business Process Re-engineering (BPR) focuses on the analysis and radical change of activities across the supply chain. It takes a holistic, systemic view, i.e. structural embeddedness, and increasingly combines big data analytics to focus activities strategically and increase efficiencies. Research indicates that the degree to which BRP takes place is indicative of the level alignment and implementation within the organisation, particularly at a governance level. Companies presented a spectrum of organisations who treated sustainability differently; those who implemented BRP were representative of a highly-embedded sustainability model. For example, Unilever and M&S had analysed and radically

changed activities within business functions and across the supply chain to embed sustainability more firmly. The most common BRP activity is impact analysis processes, such as risk assessment, footprinting and LCA and performance monitoring and evaluation tasks such as self-assessment tools, management systems, traceability, and external audit and compliance systems. These are closely aligned with the strategic planning, governance and performance processes.

5.3.3. Governance

Corporate responsibility has extended the governance of an organisation beyond its direct realm of influence and control, across boundaries into the supply chain network. This involves executive, legislative and policy responsibilities at a strategic level from which management receive their mandate and directive to implement operationally.

Executive

Embedding sustainability structurally in the core business activities firmly places the executive function in a central and powerful position. All respondents believed having a champion within the organisation, particularly board of directors and CEO who is acting on behalf of the board and shareholders, is a critical relational mechanism and has an impact on culture. They provide the power, leadership, mandate and legitimacy to drive change and influence others. Furthermore, the executive operates under the mandate of the CEO and board. Therefore, depending on the shareholder-orientation of the organisation, the governance structure and organisational orientation reflects this power structure.

In practice, it is recommended that the executive and their senior management teams take responsibility for the whole sustainability agenda, particularly if its integrated into the core business strategy. They also generate the company culture, proponents of the principles and values at the core of the business. Respondents explained how it is the executives' integrity and commitment to sustainability that determines its embeddedness across the organisation, business functions, supply chain and operations, and how it relates externally to partners. It is recommended that they have a panel of experts to advise them at a strategy level, such as General Mills, M&S, Mondeléz, Nestlé, Tesco and Unilever's independent, external advisory panel/boards and the Co-op's members advisory panels. Also, that change comes from the top, providing permission, mandate, obligation and

legitimacy. Effective executives meet regularly at a strategic level, and then decisions cascade down their teams into business functions management and operations. It is recommended that there is a clear chain of command and direct line between business functions, senior management, and management teams to the executive with clear responsibility. It is under their remit that concepts and values between sustainability and organisational orientation are evaluated and the right fit found. They take a role of leadership, alongside the CEO and board, on intergovernmental initiatives, pre-competitive platforms and industry initiatives in key organisations. Also, companies with a mature understanding of sustainability, where it is more deeply embedded, have sustainability directors being bought up towards executive team level – not necessarily on the board but have a direct line of contact to an executive team member.

Policy, Standards and Reporting

Another crucial component of governance is policy and standards as they provide guidelines for operations and supply chain relationships. While reporting is a communication tool to shareholders and stakeholders about the strategic performance of the business model. Building on the strategic planning process, companies are increasingly employing expert staff to create the guidelines utilising external experts through advisory boards, focus groups and trade associations. The inference being that focal companies take responsibility for interorganisational processes by providing codes of conduct (i.e. standards and principles) and policy as guidelines for the management component. Experience has taught those engaged in sustainability programmes that "*they can't just throw money at it… it's going to be about policies*" (manufacturing respondent). This creates buy-in and trust internally and among external stakeholders concerning the credibility and intent of MNCs to effect change in a strategic and committed manner. These guidelines also become integrated into supplier contracts. They provide boundaries and clarity for action. These guidelines are important not only for individual action but for collective action and concurrence at a sectoral level, necessary to leverage sector-wide reform. Reports instil confidence or lack thereof. While legislation obliges companies to report on what they are doing, there is no requirement for improvement – that is at the discretion of the executive. Some companies, such as Mars, are changing how they report, using the document as a 'call to action' rather than merely a tool to communicate performance measures. Increasingly, ethical guidelines are being included such as the Co-

op, Unilever and M&S. This trend is illustrative of companies taking an innovative and leadership role in the sector.

Legislation and Regulation

One of the functions of governance is the due diligence and compliance with legislation and regulation by the board. There is recognition sector-wide that effecting sustainability impact requires shared responsibility. This extends to onus of responsibility from responsible businesses to government to create an enabling environment. For example, the WCF's CocoaAction strategy which represents nine of the world's major cocoa and chocolate companies convened to tackle priority issues in cocoa sustainability such as the Harkin-Engel Protocol on child labour. As one trade association respondent explained of their role in representing their members,

> *"So, we have been able to work the ministries to understand the regulations, to provide better insights and information back to the companies and to help them accelerate the process. So that's been a great win and a great piece of progress for us even though the process is still hard, we were able to streamline the burden on the governments to just having to just talk to about fifteen companies versus just talking to us and giving us all the download. Also helping the companies navigate what is a pretty complicated and convoluted set of regulatory requirements… You know that doesn't mean that we will ever take away the relationship that's companies have individually with these governments, they need to maintain those, it's part of what they do but we can help on some of the trickier pieces there."*

Together with local governments and key stakeholders, they collaborate pre-competitively to align their goals and activities.

5.3.4. Integration

Integration is defined as the structural coordination of intra- and inter-organisational processes such as technological, logistical, channel coordination and standards. Integration, as a key process as a coordination mechanism linking strategy, design, governance and performance. This was heavily substantiated by respondents who verified the arc of integration theory (Frohlich and Westbrook, 2001). They believe that for sustainability to be successfully managed in the supply chain it needs to be integrated both in terms of depth and breadth.

Integrating Business Functions

Respondents explained that the greater the depth of integration within business functions the broader the degree of integration across the supply chain. Seven of whom cited Unilever as the exemplar, integrating it strategically and embedding in all functions holistically across the organisation. This is pertinent for marketing, as respondents explained why it was important for the marketing team to consider sustainability a good story. Examples included site visits to communities, farms and production facilities to understand the issues and impacts. Greater synergies and buy-in are being created as a result, limiting siloed thinking.

Aids to Integration

One such measure to aid integration is KPI's as they are a critical aspect of performance and, by extension, aligning this process with goal setting. They provide the mandate and guidelines to implement sustainability in practice, easing the burden of trade-offs between sustainability dimensions in practice. Thus, there is synergy with governance policy and standards to provide clarity and unity for full integration rather than activities fragmented and engaged in separately. Other aids include alignment with corporate strategy, i.e. a fully integrated TBL, a CEO as champion, dedicated executive, i.e. sustainability director, expert staff and a clear and focused strategy, i.e. business case, substantiated with dedicated resources, communication platforms and capacity development, all providing depth within an organisation. Flexibility in the orientation of the organisation, structurally and culturally, and the values that underpin these, is symbiotic with these measures. Across the supply chain, the breadth of integration is pre-determined by the organisational orientation and the network determinants to align goals and activities. Once a common agenda has been agreed, the breadth of integration is then influenced by the capacity of the partners to collaborate, enabled by levels of trust, credibility and resource investment, and leveraging scale, contract and other partners to embed sustainability.

Managing Maintenance of Integration

As organisations mature in understanding in how to integrate sustainability they are moving into the maintenance of processes including continuous improvement of BRP, scaling-up and resilience. Whereas ten years ago, sustainability was treated as an add-on by the majority of businesses examined, now certification, reducing carbon emissions,

eliminating waste and energy efficiency are baselines for action. As a result, a trade association respondent explained, "*now the time is right for this more, this big larger scale and more integrated approach which brings resilience and sustainability together.*" To do so requires continued innovation of business processes and a long-standing, mature approach. One such example is the high level of communication internally and externally in highly integrated companies. Another is a sustainability strategy that is well integrated with the company's strategy and business model. Increasingly, companies, such as Olam and Morrisons, have merged their sustainability reports with the annual strategic report. Respondents explained that how sustainability is integrated structurally is characterised by the company culture. Also, that it is a challenge to understand the how to integrate and to what degree. As one trade association respondent summarised,

> "*Oh god, the battles we had to sort of separate out what was community investment or charitable giving from corporate responsibility from sustainability and everything else; or whether you put it all together and integrate it into a company. You know I think that's sort of changing and the more efficient ways is to embed it throughout, you know, like the writing in Brighton Rock.*"

5.3.5. Collaboration

This key process focuses on embedding relational processes in SSCM as it is the process by which partners cooperate. As a process that builds collaborative advantage across the network, it requires coordination and cooperation. These constructs generate a phase-approach to collaboration depending on the strategy. One of the most common by-words for collaboration is partnership. As two other similar processes, pre-competitive collaboration and stakeholder engagement, are part of this framework, it is important to state that collaboration refers to managed relationships across and within the supply chain. The sub-processes that enable this process include goal alignment between partners, process coordination, enhanced communication and information sharing, and joint development.

<u>Goal Alignment between Partners</u>

This is an important aspect and prerequisite of collaboration if partners are to work together effectively. However, as sustainability can be conceptualised differently, and strategic priorities can vary among partners, different approaches to collaboration and goal alignment are taken. Respondents said that more is achieved by supply chain partners

working together. It is not designed to give differentiation to companies in the supply chain but differentiation for the supply chain to customers and in the market. Therefore, agreement on how that is best achieved sustainably is essential to have all partners working towards a shared vision. Furthermore, because the sustainability challenges are so many, complex, resources intense and expensive, a pragmatic and simple approach with clear goals is advised. The co-creation of the collaborative processes is considered the sensible and equitable way to achieve this conceptually but in practice, challenges become apparent, such as finding the right partners, regional disparities and power dynamics.

Coordination and Cooperation

The capacity to coordinate structurally and cooperate relationally are key facets of the collaborative process. These capacities are considered part of the corporate culture and set of behaviours. As organisations develop their capacity to collaborate, they also develop the capacity to coordinate and cooperate. This takes a change in mindset, ability to communicate multilingually, become more accountable to partners along the chain and a willingness to collaborate. A key benefit of coordination is an efficient use of resources by sharing information and learning what resources and processes create impact, while also reducing duplication.

Enhanced Communication and Information Sharing

Another motivator for collaboration is enhanced communication and sharing information across the supply chain and business functions. Respondents discussed examples of best practice, learning from partners, transferring knowledge and sharing experience for more effective and efficient sustainable supply chain integration. However, poor communication was also repeatedly discussed as one of the greatest challenges and weaknesses in practice. A range of good practices included events, advisory boards, focus groups, meetings, workgroups, site visits, internal programmes, cross-functional committees and teams, building communities, intranet and education including workshops, training, digital & printed material and coaching. However, respondents also discussed the need for trust, credibility, approachability, accessibility, building rapport, transparency, standards, privacy and contract as crucial practices for enhanced communication and information sharing. It also enables commonality and alignment over communication.

Joint Development

Joint development refers to the collective decision-making and agreements that set out the partners responsibilities. It directs the collaborative process into implementation and maintenance procedures. It provides clarity and provides the vision for collaboration. As a manufacturing respondent described it as, "*So, it's all working together and trying to get to a point where we can deliver on this community action plan. That's one of the key priorities.*" For example, M&S has developed its *Sustainability Scorecard* and *Farming for the Future* as capacity building initiatives in joint development to aid suppliers to "*understand the business case for sustainability through progressively reducing their environmental impacts, increasing their efficiency and positively benefiting their workforce*." (M&S, 2017d). However, sometimes there are disputes as to the best way as one retailer put it (describing a manufacturer they collaborate with), "*they do really good stuff but they're a pain to work with, because they always think that their way is the best way."*

5.3.6. Pre-Competitive Collaboration

A key finding in this study and characteristic of the sector is the level of supply chain network activity through pre-competitive collaboration. This process was not evident in the literature as it is a relatively new but critical aspect in the development of sustainability in SCM. Experience and the scale of issues have taught practitioners the necessity for collective action. Furthermore, their capacity to collaborate has matured.

Importantly, proactive companies across the sector have learnt the value of pre-competitive collaboration with competing companies within an industry and with organisations, they do not have commercial relations with across the sector. The most common arena is through trade association initiatives with clear principles concerning anti-trust and non-profit organisation. It has particularly strengthened global traders, manufacturers and retailers by managing risk, commodity security and stability, and get leverage across the sector. It has also contributed to consolidating power as fewer and larger MNCs become more competitive through purchasing power and contract. It has also taught them the importance of where collaboration and concurrence are relevant so that inefficient overlapping does not happen as it did in the past and where it is feasible and desirable to establish an aligned framework.

This necessitates informed personnel engaging in a series of sub-processes: identifying a common language, principles and goals, sharing information and knowledge, collectively asking questions and gathering data, developing standards, tools and resources, training and workgroups. Their boundary of activity is any activity that contravenes competition law and is considered Anti-trust by regulators. Another important aspect is that it provides a corporate veil whereby the trade association can represent the collective without negatively impacting on any one individual. This is especially important as it becomes increasingly necessary to engage with governments from developing countries to change their practices and become more transparent and accountable for example.

Network determinants play a highly influential role in this process. The cocoa supply network is very dense and centralised. This has enabled a galvanised sector in terms of alignment, coordination and collective action. In the cocoa sector, sustainability was not on the agenda until the late 1990s. The initial impetus for action was a disease burden that broke out across the Americas that required collective action. This crisis galvanised companies to collaborate pre-competitively, establishing the WCF. Subsequently, the Harkin–Engel Protocol, which legislated that no child labour or trafficking is to be used in cocoa production, further developed the capacity of actors across the network to collaborate pre-competitively (Slave Free Chocolate, 2013). The WCF has grown to 106 members, representing 80% of the global cocoa and chocolate market. This is the most substantial of all trade associations convened to tackle the issues that require collective action. However, other trade associations tackle issues such as carbon, packaging, waste, water, etc. These include both sector level organisations such as the Institute of Grocery Distribution and Chartered Institute of Logistics and Transport, as well as regional and global associations such as the Consumer Goods Forum, Business Social Compliance Initiative and Sustainable Agriculture Initiative Platform. They are also highly engaged with NGO partners including critical friends such as Oxfam and Traidcraft, registered charities, such as WRAP and Carbon Trust, and certification bodies, such as and the Fairtrade Foundation, Rainforest Alliance and UTZ, all working collectively to address sustainability issues.

While all companies choose their level of participation (if at all), findings indicate a spectrum of levels of commitment that is predetermined by organisational orientation. For one company, the extent of engagement is placed on establishing common principles and

gaols pre-competitively. This measured level of sectoral collaboration has allowed them to strategically focus on the issues that are critical to their bottom line, strengthen the sustainability of the sector and require collective action while allowing them to take a more autonomous, bespoke approach within their own supply chains closely aligned to their business model. While two companies further along the spectrum of eco-centricity are much more proactive, taking the role as leaders in sustainability that is fully embedded in their core business. In this instance, sustainability is a unique selling point to their brand and share value that adds value to their market share. In these instances, they are not only fully engaged and taking the lead in all sub-processes, in some instances they established pre-competitive associations and initiatives.

5.3.7. Stakeholder Management

Stakeholder management is a critical component of SSCM. Of the organisations analysed, they all discussed the importance of identifying, analysing, and engaging with stakeholders. They provide a good indicator as to where the big sustainability challenges are, however, because the scale is so broad and complex, the challenge is in working out which areas to focus on. This means all stakeholders cannot be satisfied.

On review of the literature, the sub-processes include stakeholder identification and analysis, identify a potential change in organisational values and trade-offs, strategic reorientation and integration, respond to stakeholder concerns, information sharing. However, upon empirical analysis, these have been amended to stakeholder identification and analysis, and stakeholder engagement. Organisations did not discuss explicitly about potentially a change in organisational values, trade-offs, strategic reorientation and integration based on the influence of stakeholders, however, this will be discussed in each of the subcases and their practices in the next section.

Identify and Analyse Stakeholders

Identifying stakeholders across the supply chain can be complex and unrealistic to consider all. However, a stakeholder analysis matrix that considers influence and impact alongside interest will provide some indication of priority. When discussing the range of stakeholders, interests were broad ranging from a large variety of NGOs interested in the impact of downstream focal companies on sustainable development in developing countries to

consumer groups and local communities downstream. The list was extensive and included intergovernmental organisations, governments, trade associations, trade unions, activists, NGOs', local communities across the developed and developing world, financial institutions, foundations and initiatives, academic and research organisations, private sector providers, media, social media, religious organisations. Interestingly, the most recent member to the list is the planet/natural environment. Mapping these is a subjective and local exercise by each organisation, determining the power these groups have to affect the organisation through supply chain activities. Respondents said that they find this a challenge, as is finding the balance in managing their expectations and supporting key stakeholders. For example, the Co-op respondent explained that,

> "*The challenge we have sometimes is that they [employees] care so much that we can't actually do the things they want us to! So, I guess we're quite the other end in terms of managing our stakeholders to maybe someone who just cares about the share price*."

While a manufacturing respondent explained, "*So, just finding the right stakeholders is not so easy."* However, it is important to identify who the stakeholders are along the supply chain and analyse what their agendas are. As such, there are a myriad of ways to engage with stakeholders depending on their interest and influence.

Engagement

Stakeholder engagement was a much-cited term by respondents. They all discussed the value and ways to engage stakeholders. Ultimately, this depended on how the company identified and analysed stakeholders and the type of relationship they wanted to manage. Essentially, it was about enhanced communication to manage reputation and expectations, alignment, coordination, consultation and to provide guidance and support. Communication exercises include press releases, workshops, meetings, forums, advisory panels, education programs and literature, and feedback channels. The channels of communication with stakeholders are managed two-ways, both in terms of getting input from and communicating with stakeholders in response to or pre-empting concerns and promoting activities. There is also the sense that communication channels are fluid and open. There is a sense of long-term commitment and increased accountability and responsibility. Also, that these relationships need to be managed so that they are not disruptive but rather constructive to the supply chain.

5.3.8. Performance Monitoring and Evaluation

This is key analytical component provides feedback to the strategic plan and measure progress on targets for embedding sustainability. Management can review the processes and approaches to managing them. This enables efficiency, effectiveness and innovation while meeting strategic goals. Respondents described how monitoring and evaluation sub-processes are important for numerous reasons. Having the correct procedures and measures enables verification, self-assessment, consequence management and accountability. Activities are designed to comply with certification and regulations, providing the information for accreditation, auditing, compliance, reporting and transparency. The system also provides information for internal company reports, such as annual and sustainability reports, and external reporting systems such as GRI.

Monitoring Activities

Monitoring is a performative assessment using activities and mechanisms such as management systems and self-assessment tools. These activities and mechanisms are strategically designed to address complex challenges that take time to solve and required a phased-approach. For example, Barry Callebaut reports,

> *"Tackling poverty is a long-term solution to child labour, but in the short term we need to put in place solid monitoring and remediation systems, in order to identify and forever eliminate child labour."* (Barry Callebaut, 2017:12)

As such, the company developed a management system that aligned policies with the International Cocoa Initiative's position on child labour. The monitoring process was dependent on other key processes, i.e. it identified key goals and metrics in strategic planning process and collaborated with multiple stakeholders to educate and enforce standards and achieve scale. The system developed procedures such as key performance indicators (KPIs) to prevent, monitor and remediate partners compliance.

Cross-functional Teams

Another activity respondents reported was creating cross-functional teams to collaborate on meeting targets and integrating technology to gather data and creating centralised databases for reporting. Internal auditing management systems have become critical to abide by policies and standards and ensure compliance by providing training, assessment and reporting. External auditing for accreditation, such as ISO 14001, requires

independently certified management systems with integrated processes and systems that ensure compliance, such as the internal auditing management system. Therefore, the design process is important for BPR to integrate monitoring procedures. It tracks progress and restructures the supply chain creating and capturing value, such as identifying and collaborating with partners who have the capacity for compliance and transparency.

External Auditing and Compliance Systems

Performance evaluation models, measures and assesses 'before and after' sustainability impacts. In evaluating sustainability impacts before, as a strategic planning exercise provides the baseline for assessment. Respondents reported that the scale and complexity of issues produce multiple criteria, often with conflicting trade-offs, such as short-term/long-term or economic vs. environmental/social, or for which developing measures are challenging. These challenges include: developing qualitative than quantitative criteria such as social issues; and downstream companies have no direct access to, control over downstream risks or they are not visible. Therefore, technology, transparency, impact mapping and scientific data are proving very important in identifying 'hot spots'. Self-assessment tools include LCA, risk assessment, and foot-printing. These tools provide the flexibility for companies to develop their own localised assessment procedures and indicators due to the materiality of contextual constraints and principles by which they determine relevance.

The other aspect of performance evaluation is to assess impacts and the management systems that delivered them for continuous improvement. Reporting is the standard format for these assessments, however, this procedure is undergoing a change in purpose – as discussed in 5.3.3 *Governance*. Traditionally, internal annual and sustainability reports have been used as compliance mechanisms and to manage reputation using self-assessment procedure. However, 21 of the 34 participants said that the function of reporting was broadening in remit due to integration and collaboration requiring increased transparency and accountability. There is also evidence that progressive companies are using third-party independent auditors or external reporting guidelines for legitimacy and credibility. Another change in reporting has been that the purpose of evaluation is not just retrospective but also proactive - reflecting on performance and setting future goals as a leadership and communication tool, to publicise purpose and opportunities for collaboration. A final trend is that as sustainability becomes increasingly integrated into the

organisational orientation. Progressive companies are producing one core annual report, of which sustainability is a strategic goal.

The other aspect of summative assessment is external auditing and verification of certification systems. Certification is of benefit, particularly by leading organisations such as Fairtrade International, the Rainforest Alliance and UTZ. Their recognition rates are high for product placement and their systems are legitimate and credible, providing simple and traceable procedures and pathways. They are also advocates for the ethical issues, that are not generally considered by business. However, for all its strengths, participants also acknowledge certification limitations: organisations are learning by experience; each commodity has its own contextual constraints; the programmes are fallible if they are not verified regularly; and that companies have to go beyond certification. Each company across the supply chain is at a different level of development, and therefore evaluation of certification programmes has to provide the flexibility to develop.

5.3.9. SSCM Key Business Process Model

This section presented the analysis of empirical data that supported the development of a key business processes model in SSCM. In deciding what is 'key', respondents were asked the question, *what are the key processes and practices in sustainable supply chain management?* The purpose was to create a model of management activities critical to the success of managing a sustainable supply chain (Figure 5.4).

This model presents a convergence of all four elements of the SSCM framework in that it explains how the sustainability, management component and business processes elements interact in the context of the network structure of SSCM. This is a novel diagram because it provides a framework with explanations of how each of these key business processes are critical in the integration of sustainability across the supply chain. The process and sub-processes are explained in-depth within the context of sustainability specifically (Section 5.3). Both academics (Section 2.3) and practitioners (Section 5.3) have identified these as critical in managing sustainable supply chains. This framework is a major contribution to SSCM as it is the first process framework of its type, following-on the traditions of its progenitor field, SCM, and related frameworks (Table 2.1).

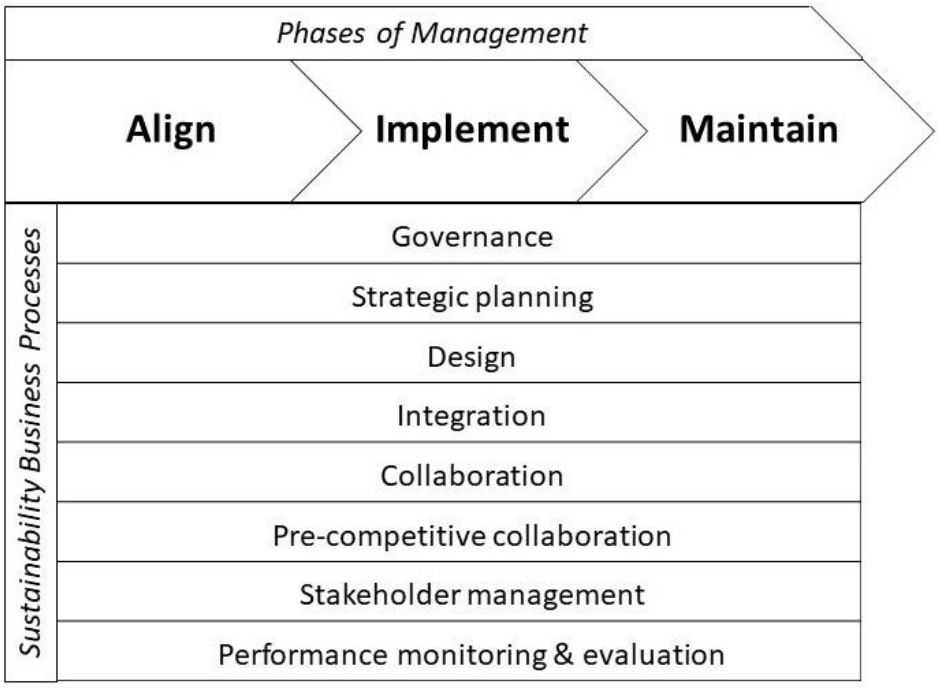


Figure 5.4: SSCM Key Business Processes Model

The most popular processes were verified, described and extended by participants. The business processes identified are not recognised formally by participants, yet when they were referred to in interviews they heavily substantiated and extended the conceptual model (Figure 2.5). The resultant model is a research contribution. Analysis of the empirical data also provides thick descriptions of how these processes are managed in practice (Sections 5.3.1 – 5.3.8). A range of sub-processes exists within processes (Figure 5.5) that have closely aligned and sometimes overlapping procedures and management components. Furthermore, managers strive for simplification of embedded criteria, so that their indicators are performative and achievable, especially given the complexity. This model builds on the literature, by adding a new key process – pre-competitive collaboration.

Limitations of the model are also presented. While these processes are standardised, they are not institutionalised or formalised. Also, due to different contextual constraints among commodities and supply chains, these processes are customised to local issues. This is exemplified in standards, which are a standardised governance procedure is different among supply chains depending on what the issues are. Furthermore, how they are applied in practice varies among companies. For example, some are highly collaborative, focusing on supply chain partnerships and programmes, while other emphasise pre-competitive collaboration and the need for systemic scale to effect impact. The variables for practices

required further examination to understand how these key business processes are managed (Section 5.4).

Figure 5.5: Key Processes & Sub-Processes in SSCM

The research considered the scope of the process across the supply chain to determine how extensive it is. Findings indicate that these processes are critical to companies within the network, especially manufacturers and retailers, but not others, such as farmers. As the farming association participant explained, goals and policies are set by the focal company as leaders. There is collaboration, integration, monitoring and verification but these

processes are limited as there are power differentials whereby farmers have to comply with standards set by more powerful actors downstream. Also, as a farming association, their priorities are different. Therefore, the key processes and supporting business model are also different in design to accomplish their organisational goals (Section 4.5.10).

Research also considered the purpose of processes in what they are accomplishing. There has been a shift in their desired outcome in that activities are increasingly impact driven rather than input or process driven.

Both academics and practitioners have identified these as critical in managing sustainable supply chains. This framework is a major contribution to SSCM as it is the first process framework of its type, following-on the traditions of its progenitor field, SCM, and related frameworks (Table 2.1).

In conclusion, in answer to *Research Questions 1.1. and 1.2,* the findings set forth two parts in answering the questions. Firstly, following an exploration of key themes and concepts in the narrative literature review, it is proposed that:

> *P2. A change in core tenets and therefore a reconceptualisation of SCM to incorporate sustainability, which in turn requires a new set of processes in an increasingly integrated, collaborative and embedded network.*

Secondly, in a review of key processes in SSCM literature, empirical findings extend our understanding of key business processes in SSCM:

> *P2a. The key processes in sustainable supply chain management are strategic planning, design, governance, integration, collaboration, pre-competitive collaboration, stakeholder management and performance monitoring and evaluation.*

5.3.10. Alignment with Existing Literature

Key Sustainability Business Process Model

Creating a model of sustainable business processes was inspired by the seminal work of Douglas et al. (1998), Croxton et al. (2001) and Lambert (2008) and their studies into SCM processes. The impetus for their work was a paradigm shift in business management which resulted in managing relationships within the supply chain, i.e. SCM. Subsequently, SCM has undergone several shifts. This study is interested in the implications of sustainability in managing a network of relationships. As Drucker (1998) explained of the paradigm shift an earlier SCM paradigm shift, the basic assumptions and practice underlying much of what is

known needs to be re-examined. This thesis argued that what is known about processes in SSCM needed to be re-examined and formalised into a coherent framework. Regardless of the complexity, diversity and siloed thinking that inhibits a holistic understanding, incoherence between processes and practices, and lack of theoretical cohesion, it is possible to create a simplified supply chain network structure that depicts SSCM business processes. The precedence has been set (Table 2.1). Furthermore, even though this type of model had not been attempted before in SSCM, the quality and quantity of literature, as exemplified in the extensive SLR, indicated the time was right.

The model of key business processes in SSCM has been summarised in Section 5.3.9. These processes are not intended to replace existing SCM process models, rather complement them. In relation to SCM, Lambert described business processes as "*a structured set of activities with specified business outcomes*" (2008:7). In comparison in SSCM, based on its changed tents (Section 2.4.1), business processes in SSCM are described as a structured set of activities with specified sustainability outcomes. The thick descriptions of the processes, sub-processes and explanations of how they are applied in practice to result in sustainability impact elevate these standards business processes into key sustainability business processes.

Lambert (2008) also explained that these were a structured set of activities among supply chain members, integrating supply chain functions in the company and integrating processes across the supply chain. Therefore, the paradigm shift brought about by embedding sustainability has led to a structured set of sustainability-focused activities among stakeholders, and a change in the processes that integrate sustainability in the company and across the supply chain (Sections 2.3, 2.4.1, 4.3.3, 5.3 & 5.4). This has shifted the theoretical discourse in SSCM beyond the traditional transactional view as value is created beyond economic value (Sections 4.3.3 & 5.2.1).

Process Model as an Isomorphic Mechanism

An interesting by-product of identifying a simplified framework of key business processes in SSCM (Figure 5.4) is the limit of its appropriation as an isomorphic mechanism, and how this mechanism is only relevant to the powerful, elite. Paraphrasing Drucker's (1998) historical and critical review of paradigms in management studies, it has been taken for granted that there is one right form of business process model. Adhering to the Fayol principle, in fact, there is not. The bias of this study, and many in the field as exemplified

by the study of themes on power influencing practices (Table 2.13) and how sustainability is conceptualised in SSCM literature (Section 2.2.4), generally present knowledge from the perspective of a MNC downstream, focal company. Often, this knowledge is created to improve efficiency and effectiveness in SSCM (as is partially the aim of this study). By doing so it strengthens sustainability and invariably the competitive advantage and the power of the focal company. The model was contested by Colcocoa, explaining that these are strategic processes that are carried out downstream by focal companies. The respondent also explained that this was a heterophilous cultural issue (Rogers & Shoemaker, 1971), in that how they organised was culturally distinctive to the Western[12], globalised orthodoxy:

> *"There are not that many people that speak multiple languages, not in the language that I can understand or can feel some of the more requirements or needs or desires or aspirations from the south, but can understand quality, efficiency requirements from the north."*

What this quote highlighted is the Fayol principle that is a fallacy to think there is one right structure for every business. The emergence of multiple new business models is also evidence of this concept. This plurality demonstrates a paradigmatic shift towards a more fragmented and contested view of organisational theory with multiple logics (Bertels & Lawrence, 2016). However, in this instance, the researcher disagrees with Drucker who claims the differences are "*mainly in application rather than in principles*" (1998:156). His view is from the general myopia of business in developed societies in the 21st century.

Phases in Managing Processes

The alignment, implementation, and maintenance of SSCM (Sections 2.2.5, 4.3.3 & 5.3; Figures 2.4 & 4.3), is similar to that recommended by Croxton et al. (2002) in SCM. The objective still remains to create value for the entire network and the coordination of activities among partners. With the inclusion of sustainability, identifying members becomes more critical given the scope of stakeholders and potential partnerships to create value (Sections 4.3.2 & 4.3.3). This precedence can be seen by the inclusion of mapping as a sub-process in strategic planning (Section 5.3.1). This study has expanded their model to include alignment and maintenance (Figure 2.4). These findings have addressed Sarkis's (2003) call to consider the critical factors and their interdependence in managing

[12] Due to geographical location, i.e. Columbia, what the respondent refers to as 'north' infers what is termed as 'Western', i.e. North America and Europe situated north of South America.

stakeholders (Section 2.2.5 *Management Component*). It explains the management phases and their interdependence among themselves and with business processes. The findings have also linked and extended the work of Kleindorfer et al., (2005), Storey et al. (2006), Vachon and Klassen (2006), Cheng et al. (2008) and Beske and Seuring (2014) by creating a phases of management model (Figures 2.4 and 5.4) that describe how business processes are managed through sequential phases and the links used to facilitate this with partners.

5.4. Practices

This section illustrates how, in order to manage a sustainable supply chain, a set of characteristics within the elements in the SSCM Framework have been identified as critical across the network to enable collaboration among interconnected organisations. Additionally, each of the nine sub-cases illustrates a unique set of variations in each element that can be described as an archetype of practice. These variations have been categorised as typologies based on the application of SNT.

The Claim

To recapitulate, practices are formed by a "*set of habits, customs, priorities and approaches*" unique to a community (Brown & Duguid, 2001). This section explains how practice is formed by a set of elements including organisational orientation, network determinants and supply chain activities and behaviours. Based on thematic analysis developed from sensitising concepts in the literature, four archetypes have been created – *Optimal, Instrumental, Normative* and *Rudimental* (Section 5.4.1). This was done by categorising the similar types of practices into typologies (Section 5.4.3). These typologies were constructed from two SNT categorical variables – density and centrality. The value given to each variable is high/low. The nine commercial companies are used as evidence to illustrate this conceptual framework (Section 5.4.2).

The Issue

In examining the supply chain network, respondents discussed a range of ways in which to manage sustainable supply chains. One of the issues they are trying to find solutions to is to understand how to collaborate more effectively with partners. However, what was

traditionally a network of interconnected businesses has now been extended due to the necessity of collaboration with multiple stakeholders.

It is evident from the data in the case study findings (Sections 4.3 and 4.4), the analysis of these through theoretical lenses (Sections 5.2 and 5.3) and the theoretical propositions developed that how business processes and management links are managed in practice is determined by sustainability orientation. The research has established that each organisation has its own style of practice. It has also established that organisational orientation and network orientation are causal mechanisms that determine the style of practice. However, the research has not established what patterns occur as a result of these causal mechanisms and whether archetypes of practice can be discovered (*Research Question 1.3*).

5.4.1. Application of Theoretical Lenses to Practices

By grounding the study theoretically using SNT, the outcomes of relationships between principles, processes and practices are predicated by density and centrality mechanisms. Through these mechanisms, it is possible to describe the relative power balance between network configurations of organisational orientation and network orientation towards sustainability. Propositions for sustainable supply chain orientation have been set out in Section 5.2. In terms of sustainability orientation, this has been considered in situations of high or low degrees of density of stakeholder links and company centrality. The gestalt of these forces results in supply chain orientation towards sustainability and the practices a company adopts to successfully manage its supply chain sustainably. The configuration of the network structure indicates the gestalt of influences towards sustainable business practices and predicts how a company will manage a sustainable supply chain given the different network configurations of SSCO. Styles of practice emerge in each configuration. (Figure 5.6).

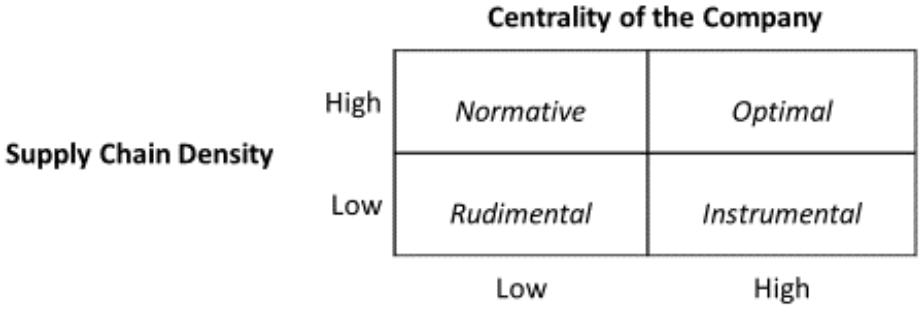


Figure 5.6: Network Determinants of SSCM Practice Types

From the literature (Table 2.15), empirical data (Sections 4.3 & 4.4), and application of SNT, the archetypes of practices are characterised as follows:

Optimal: High Density/High Centrality.

A highly dense and central network creates the conditions for eco-centric organisations at the centre of the network to benefit from a brokering position while concurrently influence by stakeholders. Specifically, stakeholders can constrain a company in a highly dense network, which means that the company will have to respond to and manage stakeholder needs while at the same time in a powerful position to resist stakeholder influences. The dense network is characterised by the interconnectedness of actors through the links. Fundamentally, this approach epitomises compromise (Rowley, 1997), participation (Vurro *et al*., 2009), collaboration (Chen & Paulraj, 2004; Vachon & Klassen, 2006), multilateral links (Alvarez *et al*., 2010) and benefits (Vurro *et al*., 2009) and an optimal ecocentric orientation. In an optimal eco-centric orientation model, there is a high alignment, implementation and maintenance of SSCM relational and structural links, rather than traditional SCM links.

In terms of the structural links, a company will be compromising and participative in practice right from the early alignment stage of assessing impact, sharing knowledge and experience, planning strategies and policies and workflow structure. Relational links emphasise trust, commitment and long-term focus, mitigating risk and unilateral ties to become multilateral and facilitate a common goal (Alvarez *et al*., 2010; Vurro *et al.,* 2009). However, at the zenith of this archetype is vision, innovation and leadership, where companies use their centrality to positively and systematically change business practices. This ultimate configuration requires significantly greater management, resource fitness and commitment.

At the implementation stage of process management, the arc of integration, phase of collaboration and degree of embeddedness is optimised. Bearing in mind, the purpose is not to collaborate with every stakeholder, embed every link or holistically integrate every process, rather, it is to optimise relationships (Gunasekaran *et al.,* 2015), processes (Carter & Rogers, 2008) and links (Rowley, 1997) that strategically, holistically and multilaterally deliver the greatest benefit and impact and achieve the common goal, i.e. optimise sustainability in the supply chain under given constraints and context. For example, the stakeholders are managed to optimise the flow of information and resources, and limit and

share risks. The workflow structure is configured to deliver impact, achieve objectives and be performative. This leads to a holistic coordination of processes, alongside a change in mindset and attitude by managers, and support and commitment of top management. As such in this highly collaborative, integrated and embedded archetype whereby SSCM links are favoured.

In the maintenance phase, transparency is optimised, which changes practices in terms of the increased trust, ethics, innovation and long-term relationships, leading to better performance (Bastian & Zentes, 2013). Resilience and continuous improvement are facilitated by innovation, long-term relationships and on-going resource fitness that in turn build collaborative relationships. In practice, this requires mutuality, compromise, trust, patience, reflection, collaborative decision-making flexibility, adaptability (Rowley, 1997; Vurro *et al.,* 2009; Fischer, 2013). This conceptualised as an optimisation of SSCM activities and behaviours (Table 5.2).

Instrumental: Low Density/High Centrality

This is where the sustainability orientation of the supply chain is unilateral in favour of the company's organisational orientation and view their stakeholders' needs as a means to an end. In this instance, low density means that the highly centralised company is in a position to resist fractioned and widely dispersed stakeholder pressure (Rowley, 1997). The company is also in a position to *"impose self-centred practices, norms, or behaviours that reflect its own interpretation of what sustainability should mean in a centrally controlled value chain*" (Vurro *et al.,* 2009:614). Rowley describes this as a "*commander role, attempting to control stakeholder behaviours and expectations*" (1997:903). In this instance, the orientation of the network is both ego and eco-centric, i.e. fractured. A dichotomy occurs in the orientation of the company, and, as such, this archetype can generate two distinct outcomes and associated links and practise. If, as Berman, Wicks, Kotha and Jones (1999) explain, the fundamental assumption of this archetype is that the ultimate objective of corporate decisions is marketplace success then the instrumental archetype is configured toward ego-centric orientation and SCM links and practices (Table 5.2). Alternatively, if the company is eco-centrically orientated, then it will use its position of centrality and power to impose its sustainability agenda on the stakeholders, imposing SSCM links and practices as discussed in the Optimal archetype. In this instance, the company may take a more normative approach as suggested by Berman et al. (1999), in

that ethical and moral principles guide decision-making and the consideration of stakeholder needs. However, we reclassify the definition of normative by Berman et al. (1999) in this instance to mean eco-centric as defined by Shrivastava (1995). Therefore, benefits and links become more multilateral. However, we argue that no matter where the company is positioned on the ego/eco-centric organisational orientation spectrum, and given the competitive advantages in sustainability, they instrumentally orientate stakeholders to meet their sustainability agenda.

Normative: High Density/Low Centrality

An alternative to the Instrumental archetype, Normative practice places the company in a subordinate and acquiescent role to network stakeholders. High density and low centrality implies that the company is in a vulnerable position with limited or no influence, particularly concerning information exchange, knowledge management and communication structure. As a result, the company is peripheral and lacks power over external stakeholder influences, and, therefore, must "*accept established norms and complies with its stakeholder expectations… [particularly] institutional pressures exerted from a more central actor*" (Rowley, 1997:904).

This thesis takes a different position to Berman et al. (1999), regards their definition of the term 'normative'. In this instance, the Normative archetype refers to the compliance of standards, behaviours and norms exerted by stakeholders, particularly those in more central (instrumental and optimal) positions to that of the company. As with the ego/eco-centric configuration of the dominant orientation paradigm - in this instance, the network, the types of practices to emerge will range in focus and density between SCM and SSCM (Table 5.2).

Rudimental: Low Density/Low Centrality

A low density and low centrality is demonstrative of solitarian and transactional practices. Low centrality means that the company is not in a position to influence the network. Low density implies that stakeholders are fragmented and dispersed. As Vurro et al (2009) explains, there may be actors invested in sustainability but not able to integrate it along the supply chain and therefore solitary and limited in their pursuits. In this instance, the orientation of the company or other stakeholders bares no impact as neither the power and influence of the company or the links that facilitate the sharing of information and

knowledge are sufficient to holistically integrate sustainability. Indicative of this configuration are ad hoc sustainability activities and opaque standards and behaviours (Vurro *et al*., 2009). Furthermore, there are low levels of alignment, implementation and maintenance of sustainability processes. Approaches become less strategic, more informal with greater emphasis on short-term commitments, managing risk, economic concerns, managing reputation, limited information sharing and delivering shareholder value, as explained by Berman et al. (1999) in their instrumental approach. In this instance, sustainability is low on the agenda of the company and stakeholders and therefore is ego-centric and under-optimised. In other words, this is the antithesis of Optimal, classified as Rudimental.

In conclusion, the organisational orientation is a company's predisposition towards goals and activities because of its structure, culture and strategy, and therefore, its predisposition towards SSCM. Furthermore, the network orientation denotes the multilateral and consolidated industrial network, orientated towards a common goal, with institutionalised norms and behaviours. The sustainability orientation of either/both determines the sustainability orientation of the supply chain. This orientation manifests on a spectrum of ego- and eco-centric principles and priorities. The character of the of the paradigm is determined by network determinants. The degree of centrality and density are causal mechanisms, which determine how sustainable supply chains are managed in practice. These configurations include Optimal, Instrumental, Normative and Rudimental archetypes. Therefore, in answer to *Research Question 1.3*, the following proposition is put forth:

> *P3. Network determinants are causal mechanisms in sustainable supply chain orientation and therefore affect how key sustainability processes are managed in practice.*

Introducing a Typology for SSCM Practice

A typology for SSCO practice based on the archetypes of practice. These typologies were derived from organisational orientation, network determinants and supply chain activities and behaviours elements. Starting with a rudimental engagement with sustainability, three increasingly engaged types of management practices emerge whereby sustainability is increasingly embedded. These are referred to as normative, instrumental and optimal archetypes.

Table 5.2: Archetype Practices and their Typologies

	Optimal	***Instrumental***	***Normative***	***Rudimental***
Organisational Orientation				
Sustainability orientation	Ecocentric	Eco/egocentric	Ego/ecocentric	Egocentric
Depth of sustainability commitment	Long-term	Long-term	Short-term	Short-term
Stage in value creation	Stage 1	Stage 2	Stage 3	Stage 4
Business model	*Unique to business but ranges from:* Business sustainability to Sustainable Business			
Network Determinants				
Network Structure	High centrality / high density	High centrality / low density	Low centrality / high density	Low centrality / low density
Centrality:				
• *Closeness*	High to Low			
• *Betweenness*	High to Low			
• *Eigenvector*	High to Low			
Density:				
• *Network Density*	%			
• *Cluster coefficient*	%High to %Low			
Supply Chain Activity				
Governance	*Participative*	*Dictatorial*	*Acquiescent*	*Transactional*
Response to stakeholder pressures	Compromiser	Commander	Subordinate	Solitarian
Arc of integration	Outward-facing	Supplier-facing/ Customer-facing	Customer-facing/ Periphery-facing	Periphery-facing/ Inward-facing
Phase of collaboration	Collaborative	Coordinated	Cooperative	Transactional
Level of Concurrence	High to Low			
Degree of embeddedness	%High to %Low			
Focus of Links	SSCM links	Relational SCM links	Structural SSCM links	SCM links

5.4.2. Cross-Case Analysis of Practices

Mondeléz International: Transitioning from Normative to Instrumental

Mondeléz demonstrates an instrumental model configured for ego-centric orientation (Table 5.3). This is because it appears to be transitioning from a normative to an instrumental SSCO. This is indicative of a company changing its business model to adapt to the external environment, in this instance high risk in cocoa supply. This is evident in its business model and management component that favours more traditional SCM links and practices (Table 4.5). On closer examination, nuances appear in practices between the supply chain and sectoral activities. The company is more eco-centric in its cocoa SCO, where it is highly controlling of its sustainability activities.

Pre-competitively, it is limited in its level of collaboration up to the level of alignment. It prefers to focus its activities on its own programme, forming partnerships and initiating projects that work directly with farmers to manage risks. Therefore, it considers stakeholders needs as a means to an end. Mondeléz considers different perspectives by attempting to control stakeholder principles and priorities, illustrative of a commander role. Even though there is growing culture for taking different perspectives into consideration, this is founded on an instrumental orientation of hegemony over stakeholders to meet their sustainability agenda. Therefore, the variables that asses its style of practice as instrumental is summarised as follows:

Table 5.3: Plotting Mondeléz's practice model

Dimension	*Optimal*	*Instrumental*	*Normative*	*Rudimental*
Style of practice		• ←		
Organisational orientation				
• **Sustainability orientation**			•	
• **Length of sustainability commitment**		•		
• **Stage in value creation**			•	
• **Business model**			•	
Network determinants				
• **Centrality**		High		
○ **Influence**		Med		
○ **Brokerage**		High		
• **Density**		Low		
○ **Clustering coefficient**	High			
Supply chain activity				
• **Governance**		•		
• **Response to stakeholder pressures**		•		
• **Arc of integration**		•		
• **Phase of collaboration**	•			
• **Level of concurrence**		•		
• **Degree of embeddedness**			•	
• **Focus of links**			•	

Unilever: Optimal

Unilever exemplifies an optimal style practice that is highly eco-centric (Table 5.4). It operates in highly dense and centralised networks, in which it strategically positions itself to be highly influential. The company has evolved from concentrated supply chain collaborations to broader networks activities that address systemic issues. This demonstrates a maturation in its understanding of sustainability and how to embed it, not only in its innovative 'purpose-led brands' but also at a pre-competitive level, seeking high

levels of concurrencyy. Therefore, it is strategically positioning itself at varying levels of centrality across different networks.

In its commitments to sustainability, the company has radicalised its business model and management model, often innovating and changing behaviour to form new practices. It highly values stakeholders and has designed management systems to consider their needs, embedding their value in its business model. It's management model multilaterally utilises relational and structural links to optimise collaborative and pre-competitive advantage.

It is leveraging its scale and reputation as a leader to drive its particular vision, passion and ambition. There is a high level of interconnectivity that is mediated both in internal social practices and events, such as internal organisational orientation, its business model and management systems, and external discourses enforced by public opinion. The organisation's activities are highly publicised and reinforced as the exemplar across social events such as print media, awards and recognition, and industry and third sector events and publications. Over the course of this research project, and earlier interest by the researcher in the subject, it has been observed that Unilever is a trend-setter and has frequently gained first-mover advantages in its practices. Its reputation proceeds itself; when it instigates innovative practices such as style of reporting, openness and transparency in digital and printed publications, or consideration of ethical issues, others shortly follow. This can be seen by the uptake in SDGs across company websites and sustainability reports in 2017. This demonstrates how Unilever's ideologies are persuasively shaping social meaning and practices of business sustainability. Therefore, the variables that asses it's style of practice as instrumental are summarised as follows:

Table 5.4: Plotting Unilever's Practice Model

Dimension	***Optimal***	***Instrumental***	***Normative***	***Rudimental***
Style of practice	•			
Organisational orientation				
• **Sustainability orientation**	•			
• **Stage in value creation**	•			
• **Business model**	•			
• **Length of sustainability commitment**	•			
Network determinants				
• **Centrality**	High			
○ **Influence**	High			
○ **Brokerage**	High			
• **Density**	High			
○ **Clustering coefficient**	High			

Supply chain activity	
• **Governance**	•
• **Response to stakeholder pressures**	•
• **Arc of integration**	•
• **Phase of collaboration**	•
• **Level of concurrence**	•
• **Degree of embeddedness**	•
• **Focus of links**	•

Mars Inc: Transitioning from Instrumental to Optimal

Mar's style of practice is instrumental (Table 5.5). However, as sustainability becomes more embedded in the core business and it's business model its management methods and practices are changing – placing greater emphasis on more SSCM-style behaviours, approaches and links. As it becomes increasingly eco-centric, it is using its position of centrality and power to impose its sustainability agenda across both the cocoa sector and wider systemic sectoral issues in the F&B sector. However, there is less of an opportunity to impose its values-led approach within the wider cocoa network. It can only do this through its own supply chain initiatives or by becoming a leader and champion for systemic change. Therefore, the company is transforming into an Optimal archetype. As it becomes more competent in developing its sustainable business model, it increasingly considers stakeholders needs, increases its capability in managing relational and structural links, and become more participative and compromise. Therefore, the variables that asses Mar's style of practice as instrumental are summarised as follows:

Table 5.5: Plotting Mars' Practice Model

Dimension	*Optimal*	*Instrumental*	*Normative*	*Rudimental*
Style of practice	←	•		
Organisational orientation				
• **Sustainability orientation**	•			
• **Stage in value creation**		•		
• **Business model**		•		
• **Length of sustainability commitment**	•			
Network determinants				
• **Centrality**		High		
○ **Influence**		High		
○ **Brokerage**		High		
• **Density**		Low		
○ **Clustering coefficient**	High			
Supply chain activity				
• **Governance**		•		
• **Response to stakeholder pressures**	•			
• **Arc of integration**		•		

• **Phase of collaboration**	•			
• **Level of concurrence**	•			
• **Degree of embeddedness**	•			
• **Focus of links**		•		

Danone: Transforming from an Instrumental to Optimal

Danone is undergoing the most radical of organisational transformations, of any of the sub-cases analysed (Table 5.6). As such, there is a dichotomy between strategic corporate orientation and supply chain practices. Furthermore, the respondent was a market director, rather than a sustainability or supply chain director and therefore was limited in her insights into challenges, issues or actual practices across the supply chain. Instead, she provided insights into internal issues such as communication, workflow structure, leadership and values. However, from her insights and the use of secondary data, it was possible to understand the style of practice across the organisation and its supply chains.

Danone, historically, was not highly focused on sustainability strategically. Therefore, it did not place itself in a central position within many of the F&B networks. Instead, like Mondeléz, it traditionally preferred collaborative to concurrent activities and retaining direct control and coordination of its supply chains through contract. As sustainability impacts became more systemic across the sector, Danone began moving from its peripheral position to a more centralised role and in doing so its rhetoric towards stakeholders changed. In terms of corporate text, stakeholders are strategically significant and integrated into the brand value. However, this is still moderate in practice as can be seen by the limited use of the materiality matrix and information sharing.

This practice, along with others is significantly changing as Danone rapidly moves towards its 2020 strategic agenda and 2030 goal of becoming a B Corp company. This can be seen by a change in its organisational orientation, network orientation and supply chain activity. It is now championing multilateral and consolidated systemic change, especially in food supply chain practice through its self-branded alimentation. Therefore, the variables that asses it's style of practice as instrumental are summarised as follows:

Table 5.6: Plotting Danone's Practice Model

Dimension	***Optimal***	***Instrumental***	***Normative***	***Rudimental***
Style of practice	←	•		
Organisational orientation				
• **Sustainability orientation**	•			
• **Stage in value creation**	•			
• **Business model**	•			

• **Length of sustainability commitment**	•			
Network determinants				
• **Centrality**		High		
○ **Influence**		High		
○ **Brokerage**		High		
• **Density**		Low		
○ **Clustering coefficient**		High		
Supply chain activity				
• **Governance**		•		
• **Response to stakeholder pressures**		•		
• **Arc of integration**				
• **Phase of collaboration**		•		
• **Level of concurrence**			•	
• **Degree of embeddedness**		•		
• **Focus of links**		•		

Tesco: Transitioning from Rudimental to Instrumental

Tesco is making progress towards becoming more responsible and trustworthy. It is transforming its organisation structurally and strategically to become more eco-centric (Table 5.7). It is doing so as a means to an end: deliver long-term sustainable shareholder value. To do so, it is having to respond to external pressures, such as customer needs and public commitments, regards the sustainability imperative. It understands that to maintain its position as a leader it needs to leverage both its supply chains and their networks to have scale for impact. If it is to reach this target it would be advised to embed sustainability more deeply and optimise structural and relational links that others within their networks are doing successfully. Therefore, the variables that asses it's style of practice as instrumental are summarised as follows:

Table 5.7: Plotting Mondeléz's Practice Model

Dimension	*Optimal*	*Instrumental*	*Normative*	*Rudimental*
Style of practice		• ←		•
Organisational orientation				
• **Sustainability orientation**			•	
• **Length of sustainability commitment**			•	
• **Stage in value creation**				•
• **Business model**				
Network determinants				
• **Centrality**	High			
○ **Influence**	High			
○ **Brokerage**	High			
• **Density**	High			
○ **Clustering coefficient**	High			
Supply chain activity				
• **Governance**		•		
• **Response to stakeholder pressures**		•		

• **Arc of integration**				•
• **Phase of collaboration**	•			
• **Level of concurrence**	•			
• **Degree of embeddedness**			•	
• **Focus of links**			•	

Marks & Spencer: Optimal

M&S's style of practice can be described as optimal (Table 5.8). It creates high-density networks in which it positions itself centrally by creating value in its relationships. It is highly econ-centric and committed to systemic changes across the business as it recognises that how business is done is not sustainable. It demonstrates responsibility and accountability in how it influences its stakeholders, particularly suppliers and customers, encouraging certain practices. Therefore, it is seeking to transform food practices, particularly the role of business in these.

Table 5.8: Plotting M&S's Practice Model

Dimension	*Optimal*	*Instrumental*	*Normative*	*Rudimental*
Style of practice	•			
Organisational orientation				
• **Sustainability orientation**	•			
• **Stage in value creation**	•			
• **Business model**	•			
• **Length of sustainability commitment**	•			
Network determinants				
• **Centrality**	High			
○ **Influence**	Med			
○ **Brokerage**	Med			
• **Density**	High			
○ **Clustering coefficient**	High			
Supply chain activity				
• **Governance**	•			
• **Response to stakeholder pressures**	•			
• **Arc of integration**	•			
• **Phase of collaboration**	•			
• **Level of concurrence**	•			
• **Degree of embeddedness**	•			
• **Focus of links**	•			

It has optimised its management components, particularly newer SSCM links that encourage a new way of doing business and more collaborative and collective action. It leads by example, with a heavily substantiated and comprehensive website that is open, accountable and transparent. It does so to encourage best practice while remaining humble and open to learning from others and therefore encouraging feedback.

It's sustainable business model, of which its supply chains play a critical role, is visionary, innovative and provides leadership by positively and systematically changing business practices. This approach requires greater management, resource fitness and commitment, which it has demonstrated. Furthermore, it is compromising and participative in considering stakeholders needs and their influence along the supply chain. Therefore, governance and transparency mechanisms feature heavily in the company's activities to manage sustainability effectively across the supply chain. Therefore, the variables that asses it's style of practice as instrumental is summarised as follows:

The Co-operative Group: Optimal

The Co-op's style of practice is optimal. It's behaviours in terms of network positioning and management components would indicate a rudimental or normative style SSCO orientation but it is, in fact, optimal (Table 5.9). This is because the organisational orientation is so strong it dominates its business practices which are sustainable.

This includes considering and responding to stakeholder needs by its very nature of business ethos, making it categorically eco-centric. It does this by being compromising and participative in its supply chains where its activities or impacts are visible. Where visibility is not possible due to complexity, it calls for and promotes pre-competitive collective action to improve standards across the network. As such governance mechanisms are a core component of the business model, placing emphasis on values, principles, ethics and social responsibility. However, in the past decade this got damaged and undermined and, in response, the company is strategically readdressing its core business to restore its reputation and orientation. These values fundamentally determine how sustainability principles are understood and embedded within the core values of the business. Its business brand is built on "The Co-op Way" which is managing the business in an ethical and sustainable manner. Therefore, business decisions are determined by its values and principles which prioritise long-term sustainability commitments if they place the value of their stakeholders over financial gains. This creates a tension in the business which needs to be financially sustainable.

However, the Co-operative does not fit with the theoretical proposition that it is solitarian or transactional within its networks due to low centrality and density. In fact, it clearly demonstrates optimal-style practices. This is because the company is so strongly orientated towards sustainability that it only participates in an ethical and responsible

manner, preferring Fairtrade supply chains where possible. This intuitively makes the arc of integration outward-facing, phase of collaboration collaborative, encourages concurrence, a high level of embeddedness and a focus on SSCM links. Therefore, the variables that asses it's style of practice as instrumental is summarised as follows:

Table 5.9: Plotting the Co-op's Practice Model

Dimension	*Optimal*	*Instrumental*	*Normative*	*Rudimental*
Style of practice	•			
Organisational orientation				
• **Sustainability orientation**	•			
• **Length of sustainability commitment**	•			
• **Stage in value creation**	•			•
• **Business model**	•			
Network determinants				
• **Centrality**				Low
○ **Influence**				Low
○ **Brokerage**				Low
• **Density**				Low
○ **Clustering coefficient**	High			
Supply chain activity				
• **Governance**	•			
• **Response to stakeholder pressures**	•			
• **Arc of integration**	•			
• **Phase of collaboration**	•			
• **Level of concurrence**	•			
• **Degree of embeddedness**		•		
• **Focus of links**	•			

Amcor: Normative

Amcor's style of practice is normative (Table 5.10). It is a traditional neo-classical business model that is configured to deliver shareholder value. Amor to responding to systemic economic changes, because of sustainability, through *Stage 2 Value Creation.* The business model favours normative practices in that it seeks to create sustainability value to remain a category leader and business sustainability within the packaging industry. It is profit driven and captures values for shareholders and customers. Its product innovation and sustainable supply chains activities are configured to deliver this type of value.

Regards its network position, it is highly centralised within its own supply chains working to deliver customer value through sustainable products. Here practices of a 'supplier facing and customer facing' arc of integration are seen, alongside coordinated partnerships. Furthermore, the focus of its activities is SCM structural links as it is a process-driven company focused on Stage 2 product innovation to create sustainability value. It is also

highly centralised within its industry packaging network to retain its position of leadership. This can be seen by its commanding role within these networks. However, its behaviour and position changes in other networks. Amcor is not centralised within the cocoa supply chain network nor the broader F&B network because packaging is a secondary industry, and therefore, takes a subordinate, acquiescent role. Therefore, the variables that asses it's style of practice as normative are summarised as follows:

Table 5.10: Plotting Amcor's Practice Model

Dimension	*Optimal*	*Instrumental*	*Normative*	*Rudimental*
Style of practice		←	•	
Organisational orientation				
• **Sustainability orientation**			•	
• **Length of sustainability commitment**				
• **Stage in value creation**			•	
• **Business model**			•	
Network determinants				
• **Centrality (Closeness)**			Moderate	
○ **Influence**			Moderate	
○ **Brokerage**				Low
• **Density**				Low
○ **Clustering coefficient**				Low
Supply chain activity				
• **Governance**			•	
• **Response to stakeholder pressures**		•		
• **Arc of integration**		•		
• **Phase of collaboration**				
• **Level of concurrence**			•	
• **Degree of embeddedness**		•		
• **Focus of links**			•	

Colcocoa: Optimal

Colcocoa is similar to the Co-op in that its business model, activities and behaviours are highly eco-centric. These are based on alternative economic principles to the dominant, hegemonic capitalist paradigm. However, it operates within a network dominated by powerful downstream focal companies who epitomise and have made their wealth from this paradigm. Its commercial position in the network is peripheral, only representing approximately 0.08% of cocoa farmers upstream. Colcocoa does not have resource fitness so cannot leverage financial resources to position itself centrally within clusters such as industry initiatives, events or trade associations. Therefore, they have a low pre-competitive presence, yet optimise every opportunity they create. Instead, Colcocoa seeks

to create value and offer this to its customers in their brand proposition. Therefore, the variables that asses it's style of practice as optimal are summarised as follows:

Table 5.11: Plotting the Co-op's Practice Model

Dimension	*Optimal*	*Instrumental*	*Normative*	*Rudimental*
Style of practice	•			
Organisational orientation				
• **Sustainability orientation**	•			
• **Length of sustainability commitment**	•			
• **Stage in value creation**	•			
• **Business model**	•			
Network determinants				
• **Centrality**			Moderate	
○ **Influence**				Low
○ **Brokerage**				Low
• **Density**				Low
○ **Clustering coefficient**	High			
Supply chain activity				
• **Governance**	•			
• **Response to stakeholder pressures**	•			
• **Arc of integration**	•			
• **Phase of collaboration**	•			
• **Level of concurrence**	•			
• **Degree of embeddedness**	•			
• **Focus of links**	•			

5.4.3. Summary of Practices in Cases Studies

Table 5.12 provides a summary of typologies of practices of the companies analysed. The two dominant styles of practice are instrumental and optimal. This would be consistent with the expectation that responsible businesses are highly engaged in sustainability practices. This is exemplified by the extent of their organisational orientation towards eco-centricity and their consideration of stakeholder needs towards optimal and instrumental practices (Figure 5.7).

However, there are exceptions. Two distinct groups within the optimal category: capitalist (Group 1) and alternative economic paradigms (Group 2). Group 1 represents Unilever and M&S and Group 2 represents the Co-op and Colcocoa. The distinct difference between these two groups is that Group 1 leverages network structure to influence SSCO, whereas Group 2 do not. The Co-op and Colcocoa are anomalies which appear to challenge the theoretical propositions of the framework. Neither need to change their business models to become more sustainable as each inherently is. However, neither are part of the dominant economic paradigm – in fact they would be considered alternative and in a

minority. They do not leverage their positions in the network, like Unilever and M&S are, to influence the principles and practices, even though each has valuable insights and experience in sustainable, collaborative and ethical practices. Reasons for this could be because the Co-op is currently undergoing a structural change to recover legitimacy in its values and Colcocoa is a peripheral, upstream small enterprise with neither the commercial or pre-competitive power to influence practices across the network. Alternatively, they are not sought out by network members for their experience in applying eco-centric principles in practice. Amcor is the only normative style, this is explained as it would be considered high instrumental within its own supply chains and industry where it holds a centralised position exemplifying this type of practice. However, within the cocoa supply chain, it is does not have the same priorities, interest or impact.

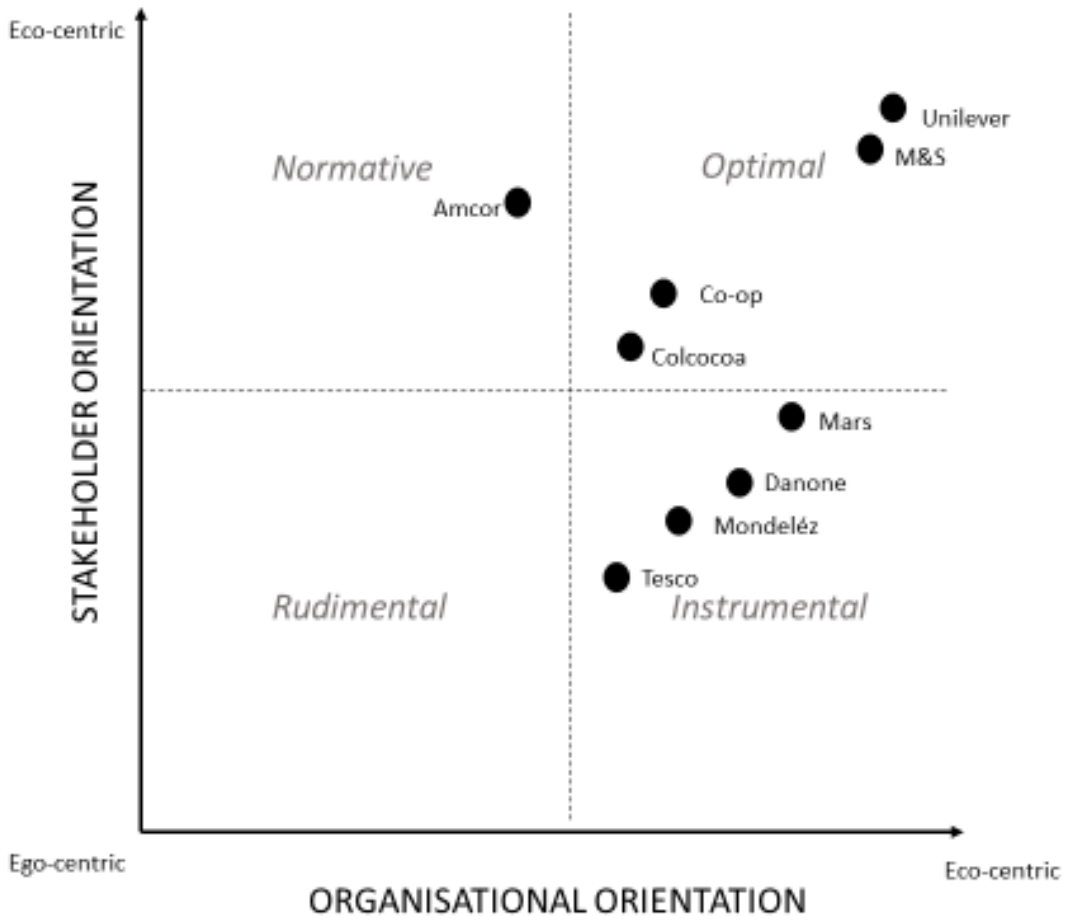


Figure 5.7: Plotting Companies on Network/Organisational Orientation Matrix

Table 5.12: Summary of Styles of Practice across the Chocolate Sustainable Supply Chain Network in Studied Companies

Case study	***Mondeléz***	***Unilever***	***Mars***	***Danone***	***Tesco***	***M&S***	***Co-op***	***Amcor***	***Colcocoa***
Style of practice	Low Instrumental	Optimal	High Instrumental	Low Instrumental	Low Instrumental	Optimal	Optimal	High Normative	Optimal
Organisational Orientation									
Sustainability orientation	Ego/eco-centric	Eco-centric	Eco/ego-centric	Ego/eco-centric	Ego/eco-centric	Eco-centric	Eco-centric	Ego/eco-centric	Eco-centric
Length of sustainability commitment	Moderate	Long	Long	Long	Moderate	Long	Long	Moderate	Long
Response to stakeholder pressures	Commander	Compromiser	Compromiser	Commander	Commander	Compromiser	Compromiser	Subordinate	Subordinate
Stage of value creation	Stage 2	Stage 4	Stage 3	Stage 3	Stage 2	Stage 4	Stage 1	Stage 2	Stage 4
Business model	TBL	Responsible	Sustainable	B-Corp	TBL	Sustainable	Co-operative	TBL	Indigenous
Network Determinants									
Closeness (avg. 0.01)	0.014	0.012	0.013	0.012	0.11	0.011	0.01	0.1	0.011
/centrality	High	High	High	High	Moderate	Moderate	Moderate	Moderate	Moderate
Betweenness (avg. 24.796)	159.344	50.066	57.602	80.286	18.335	36.04	14.346	10.47	12.41
/brokerage	High	High	High	High	Low	High	Low	Low	Low
Eigenvector (avg. 0.019)	0.036	0.026	0.034	0.027	0.022	0.024	0.011	0.017	0.026
/influence	High	High	High	High	High	High	Low	Moderate	Low
Network Density	Low	Low	Low	Low	Low	Low	Low	Low	Low
Cluster coefficient (avg. 34%)	26%	25%	27%	25%	26%	18%	19%	42%	55%
Structural links	76%	90%	83%	67%	64%	92%	69%	83%	72%
/Degree of embeddedness	High	High	High	Moderate	Moderate	High	Moderate	High	High
Relational links	67%	95%	95%	76%	59%	97%	87%	74%	74%
/Degree of embeddedness	Moderate	High	High	Moderate	Moderate	High	High	High	High
Focus of links	Structural SSCM	SSCM	Relational SCM	Relational SCM	Structural SCM	SSCM	Relational SSCM	Structural SCM	Relational SSCM
Supply chain activity									
Governance	Dictatorial	Participative	Dictatorial	Dictatorial	Dictatorial	Participative	Participative	Acquiescent	Acquiescent
Arc of integration	Supplier-facing/ Customer-facing	Outward-facing	Supplier-facing/ Customer-facing	Customer-facing/ Periphery-facing	Periphery-facing/ Inward-facing	Outward-facing	Outward-facing	Supplier-facing/ Customer-facing	Customer facing
Phase of collaboration	Collaborative	Collaborative	Collaborative	Coordinated	Collaboration	Collaboration	Collaboration	Coordinate	Collaborate
Level of concurrence	High	Moderate	High	Moderate	Moderate	High	Moderate	Moderate	Low

Within supply chains and sectoral activities, companies, with a strategic interest in the orientation of the network, are highly centralised. However, there are differences in the nature of the relationship and density, which effects practice. Within supply chains, the network ties are less dense allowing instrumental style practice, whereby the company is a commander and dictatorial in direct control. Within sectoral activities, the density increases with interrelationship links. Thereby the company becomes more 'optimal' in behaviour; compromising and participative, seeking concurrence to generate the necessary collective action. This is why companies keep the definition of sustainability simple and dimensionally-focused, rather than principles, led. What is evident is that some companies are leveraging their supply chain position and controlling the density of links it embeds to meet its strategic agenda, such as Unilever, M&S, Mondeléz and Tesco (Table 5.12). Whereas, other companies, such as Amcor, Mars and Danone, are changing their organisational orientation and looking to create new value across their supply chain. Their business models, relationship with stakeholders and supply chain practices are changing.

5.4.4. Application of Theoretical Lenses

The aim of this research project was to understand how SSCM processes are managed in practice. Within this context, it was necessary to study the ability of organisations to act in a particular way – this required an examination of the mechanisms leveraged to influence the behaviour of others and the sustainability of the supply chain (Section 5.4.1). Within the analysis of the sustainable cocoa supply chain network, it became evident that there are different dynamics at play and that it is treated in different ways (Sections 4.3, 4.4, 5.2 & 5.4). This section examines theories that helped explain the multi-faceted aspects of the research findings. It also explains how the research findings extended our understanding of these theories in the domain of SSCM.

New Capitalism

The eco-centric sustainable business models' findings are consistent with the theoretical proposition of Freeman (2017) who argues that a 'new story of business is emerging' based on an emerging economic paradigm. He states that this more responsible capitalism bases the unit of analysis on stakeholders, rather than shareholders. This thesis concurs with Freeman in its findings of types of responsible business models based on higher stakeholder

value (Figure 5.2). This thesis also concurs with Freeman's assertion that stakeholders are interdependent, as one of the tenets of SSCM is the interdependence of relationships across the network. This is for increased collaboration to capture shareholder value, collaborative advantage, collective action and shared responsibility.

Freeman argues that "*trade-offs are managerial failures of creative imagination*" and that it is in the interest of collaboration to align stakeholder interests (2017:459). Unilever concurs with this concept. This is reasonable if stakeholder interests align, as has been ably demonstrated by the high level of concurrence and pre-competitive collaboration. However, it becomes more difficult "*When there's conflict among stakeholders, where there's conflict among core values"* (Freeman, 2017:461). This can be seen by the issue of value distribution in the cocoa supply chain and the vulnerability of smaller actors who cannot leverage scale (Sections 4.4, 5.2.1 & 5.4). The Barometer Consortium recommends several steps to encourage shared responsibility and redistribution of wealth, however, this would require a systemic change to the market system and its mechanisms (Fountain *et al.,* 2014). This tension was witnessed by the researcher at the Innovation Forum's event. A leading brand manufacturer admitted that building the capacity of all actors was "*something we overlook a little*", while a farming association voiced their frustration over the 'squeeze' on prices at farm gate. However, leading companies are exhibiting innovation and creativeness in developing new business models and practices that consider stakeholder values and needs, such as those that utilise stakeholder assessment matrices.

This thesis also endorses Freeman's view that "*purpose, values and ethics must be embedded in the organisation*" (2017:461). In fact, it can be argued that these things are inherent in the organisational orientation (Sections 4.3, 4.4, 5.2 & 5.5). It is a question of how these are qualified, as illustrated by the ego/eco-centric spectrum. Another feature that arose from the research is that all respondents were adamant that no one individual is a morally evil person – in fact, quite the opposite. They act with the best intentions and, at best, can be instrumental in effecting profound change. While some businesses are responding to risk, others are finding opportunities, as illustrated by the value proposition in business modes (Sections 4.3.3, 4.4 & 5.4).

Freeman also considers the transformative potential of environmental constraints and opportunities for innovation. What is evident from the research is that sustainability impacts and limitations are creating new products and markets. In concurrence with the

work of Seuring and Müller (2008b), Lubin and Esty (2010) and Wolf (2011), this study has demonstrated how businesses are creating value from sustainability constraints (Sections 4.3.3, 4.4 & 5.4).

Finally, Freeman challenges the age-old rhetoric of the economic man being merely a rational economic man who is self-interested and into making a profit. In fact, along with Freeman, this author encourages academics and practitioners alike to recall Adam Smith's thesis in Theory of Moral Sentiments where he hoped man would pursue nobler ideals;

> *"How selfish so ever man may be supposed, there are evidently some principles in his nature, which interest him in the fortune of others, and render their happiness necessary to him, though he derives nothing from it except the pleasure of seeing it. Of this kind is pity or compassion, the emotion which we feel for the misery of others, when we either see it, or are made to conceive it in a very lively manner. That we often derive sorrow from the sorrow of others, is a matter of fact too obvious to require any instances to prove it; for this sentiment, like all the other original passions of human nature, is by no means confined to the virtuous and humane, though they perhaps may feel it with the most exquisite sensibility. The greatest ruffian, the most hardened violator of the laws of society, is not altogether without it."* (Smith, 1759:13)

Therefore, Smith's old capitalism and Freeman's new capitalism provide further insight into business ethics and the emerging business models that are shaping SSCM principles, processes and practices (Section 5.2.1). However, what they do not illustrate is how some powerful focal companies within this paradigm are using their position in the network and the network structure to influence and institutionalise what they consider to be ethical and best practice. To do this requires an understanding of networks, power asymmetry, and stakeholder interdependencies and influences.

Stakeholder Network Theory

SNT was used to explain the style of practice models that are used by companies (Sections 2.4 & 5.4). The theory examined the characteristics of the entire stakeholder network and their impact on an organisation's behaviours (Rowley, 1997). As a result of examining how supply chains are managed sustainably through the lens of STN, this thesis has made several contributions to expand our theoretical understanding of SSCM and SNT.

One approach recommended by Rowley (1997) was to examine the characteristics of the entire stakeholder structures and their impact on an organisation's behaviour. He argues that the density and centrality of the network "*influence its degree of resistance to stakeholder demands*" (1997:888). These mechanisms produced some interesting insights

as proxies for power to influence processes, practices and supply chain orientation (Sections 2.2.1, 2.2.2, 2.4.2, 2.4.3, 4.3.3, 4.4, 5.4 & 5.5). However, a new insight on network structure and SNT emerged from the findings that was not predicted from the extant SSCM literature: clusters.

Network Structure and Clusters

In keeping with Drucker (1993), the network is also being used as a mechanism to link members of communities of practice within the supply chain network together. This was observed through the higher level of clustering to overall network density (Section 4.3.2). This finding shows how clusters of organisations with an agenda are increasing density to develop knowledge and learning. This finding realises the prediction by Roome in the context of SSCM that,

> *"Organisational networks and innovation and adaptation has led me to suggest that sustainable development will unfold as a complex series of social and industrial experiments (Roome, 1998). This will involve networks of organisational and individual actors forming and reforming action – learning collaborations that lead to social and technological innovations and adaptations, which are referenced against guiding principles of sustainable development."* (2001:72)

However, one aspect of his prediction was not correct. These actions are not referenced against guiding principles of sustainable development, rather they are referenced against the concurrent guiding principles of the cohort, i.e. the WCF's *CocoaAction* strategy.

To explain this phenomenon, it is necessary to draw on the literature of interorganisational relationships (Section 5.2.4) and the work of Barringer and Harrison (2000) in creating value. There is no cohesive theory that explains leveraging clusters of interorganisational relationships, such as trade or multi-stakeholder associations, to increase political power. However, a useful starting point are the insights from overlapping theoretical perspectives. The strategic choice perspective illustrates how a company utilises interorganisational relationships for strategic reasons, such as increasing collaborative and concurrent advantages to achieve their strategic sustainability agenda. This study extends the list of rationales captured by Powell as,

> *"Firms pursue cooperative agreement in order to gain fast access to new technologies or new markets, to benefit from economies of scale in joint research and/or production, to tap into sources of know-how located outside the boundaries of the firm, and to share the risks of activities that are beyond the scope of the capabilities of a single organisation"* (1990:315)

Specifically, findings show that another benefit of interorganisational relationships is to establish principles, practices and norms that are the preference of a powerful focal company and its cohort who want to perpetuate a system under which these values were formed (Sections 4.3.2 & 5.2.2). This infers that relationships have political power that companies are leveraging through clustering. This scale and type of collaboration has the benefit of configuring political, economic and social agendas.

A tenet of stakeholder theory is that organisations are mechanisms for coordinating stakeholder interests and the necessary values upon which these are articulated (Freeman et al., 2004). It encourages companies to consider "*managers to articulate the shared sense of the value they create, and what brings its core stakeholders together*" (Freeman *et al.,* 2004:364). Therefore, extending the concept of the organisation as a company to the organisation as an association of companies, this tenet becomes more pertinent when considering what values brings this association of core stakeholders together.

Application of Other Theoretical Lenses to Understand Clusters

Resource dependency theory also shines a light on how companies increase their power relative to other organisations. They do so by taking a leadership role in their industry, sector or cluster and leverage their resources, such as resource fitness and knowledge. Companies also leverage collective action to address the scale of sustainability megatrends. From a resource-based view, not only do organisation's benefit by gaining access to critical resources and taking advantage of complementary assets but also by harnessing sustainability principles and priorities that are valuable to them. Through this, the knowledge-based view is seen as a strategic asset for competitive advantage whereby those considered leaders legitimise their principles and practices which are formalised in the institutions of the collective.

Institutional theory concludes the insights of this theoretical cohort that overlap our theoretical understanding of network structure as a mechanism for orientating the supply chain network towards certain principles. Within the premise of STN, institutional theory is closely aligned as it is the environment in which prevailing social norms are legitimised and conformed to (DiMaggio & Powell, 1983). As Oliver (1991) explains, a motive for organisational behaviour is that it is interest driven. Expanding on her typology of strategic responses to institutional processes (Oliver, 1991:152) through the convergent assumptions of SNT, organisations are manipulating stakeholders through network

structure clustering. This is the most demonstrative example of a company cultivating collective action aligned with their principles. If the network is too dense to resist stakeholder influence, a company uses its reputation as an expert leader to create legitimacy and manipulate stakeholders. In fact, Oliver (1991) explains density provides an opportunity to demonstrate worthiness and acceptability. Certainly, in the example of WCF, the *CocoaAction* initiative represents the principles and priorities of the ten of the largest and most powerful cocoa companies. They direct the voluntary industry-wide strategy of which 100 of the most influential supply chain members are aligned with.

Stakeholder Resistance and Receptivity

The findings shed new light on the concept of "*organisational resistance to stakeholder influences*" in SNT (Rowley, 1997:885). Findings have demonstrated a new value proposition regards stakeholders that is changing behaviours, i.e. organisational receptivity (Section 5.2.1). This can explain the emergence of new processes and behaviours revealed in this study, such as pre-competitive collaboration (Section 5.3.6) and concurrence (Section 5.2.2). Therefore, this raises new research questions: *Does Rowley's proposition of constraint* (1997:898) *change if an organisation does not wish to resist stakeholder influences;* and *If so, does this change behaviours?* The findings suggest a review of this theory in light of stakeholder receptivity is worth further investigation.

Gold and Schleper (2017) provide insight into this phenomenon in their discourse on reification and SSCM. They argue that there is a "*shift from a normative sustainable development to a purely instrumental one*" (Gold & Schleper, 2017:427). This has been illustrated by the more ego-centric practices in this study (Sections 4.4, 5.2.1 & 5.4). However, an eco-centric oriented company demonstrates that practice takes another shift, this time to the optimal style (Section 5.4). This is because actors with increasing awareness of stakeholder needs do not fall into the trap of commoditising stakeholders or sustainability. Rather they create value in both by embedding them in their business model. The 'recognition' that Gold and Schleper recommend is exemplified in this increased consideration of stakeholder values that as entities "*have values in themselves and do not primarily serve economic reasons*" (2017:428). Therefore, this thesis concurs with their recommendation that "*SSCM should meet the challenge of taking care of those who are sometimes 'forgotten' by processes or reification*" (Gold & Schleper, 2017:428). It has begun to address this imbalance through its theoretical propositions, findings and contributions

to knowledge. It has revealed that this is a pluralistic activity, as argued by Freeman, Wicks and Parmar (2004). The thesis also agrees with Boons and Berends (2001) that the network structures are paradigmatically rich and dynamic to the continuous adaption process of sustainable development. This thesis shows that given the plurality of values, actions contribute to but are not always in the interest of an ideological form of sustainable development. Given the evidence of increased clustering (Section 4.3.2), this research supports concepts of homophilous and heterophilous interactions (Rogers & Shoemaker, 1971). The homogeneity of homophilous actions inhibits innovation and sustainable development through isomorphism of politically and economically orientated powerful ideologies and paradigms. Boons and Berends describe this as,

> *"Interaction between homophilous actors is expected to result in strong links, which in time might lead to isomorphism: the adoption of shared norms, beliefs and ideas that influence the ways actors approach a task."* (2001:117)

By redirecting and reaffirming SSCM research towards a sustainable view of business activity that creates value for groups of stakeholders, i.e. eco-centric behaviour, SNT provides a level of understanding in which the whole supply chain, as a group of organisations, work towards sustainable development (Section 5.2.3). In this changing world of stakeholder environments and value creation, the unique aggregate of influences and responses to these is also changing in value. In other words, does this paradigm change when resistance and pressure is replaced with collaboration, concurrence and embeddedness, and if so how? Evidence seems to suggest that receptivity to influence is contributing to this paradigm shift.

Leveraging Isomorphic Mechanisms

A key finding of this research project was the use of mechanisms of isomorphism in supply chain networks. Knights helps explain this phenomenon within the context of power as,

> "*Within mainstream organisation theory, there are two diametrically opposed ways of understanding power: crucial mechanism in managing and sustaining survival in complex environments or as a disruptive mechanism exercised outside of its formal hierarchical limits by those seeking to challenge it*" (2009:149)

This quote illustrates how value creation across the supply chain is drawn from consensus within the system. It also illustrates the limitations in mainstream thinking, as it fails to consider the major social inequalities exercised by power (Alvesson *et al*., 2009). Knight

argues that authority is legitimised because some level of "*consent or compliance among those over whom power is exercised*" (2009:145). Furthermore, it becomes a determining force because authority and legitimacy in the context of sustainability is presumed positively productive and enabling. There is a naive assumption here that all things sustainable are good (as raised in Section 5.4.4. *Leveraging Isomorphic Mechanisms*). Power has an instrumental function; as a possession, it is the source through which organisations leverage their sustainability principles and practices. This requires a sophisticated understanding of power, its dynamics, mechanisms and functional levels.

The value creation process, under the orthodox business paradigm, was traditionally built around economic principles. However, with the inclusion of stakeholder and sustainability values, principles move beyond creating economic value (Section 5.2.1). Within networks, sustainability can be mediated by power dynamics among organisations (Sections 4.3.2 & 4.4). These dynamics consider the power of an organisation relative to another; direct or indirect influence through brokerage and strategically connected actors; how power is consolidated among homophilous actors; and how the authoritative voice gives legitimacy to certain values and, thus, creates a dominant paradigm. Drawing on the work of Hardy (2000; 2014), who explored the appropriation and mobilisation of particular discourses, findings in this study suggest an omnipotence of focal companies in bringing about sustainability principles (Sections 4.3.2 & 4.4). Their power, access to the network and resource fitness place them centrally within the network. This enables them to participate in and develop homophilous clusters and use intercontextual mediums to shape discourse (Section 5.2.2). This is a fundamental principle of Doz and Hamel's (2001) *logic of alliance value creation* that states globalisation builds critical strength and gains competitive advantage through co-option. However, like Powell (1990), they fail to consider the benefit of co-option of stakeholders into partners by creating homophilous values through isomorphic mechanisms (Sections 5.2.4. *Moving Beyond Strategic TBL Integration to Embedding Sustainability in the Business Model* & 5.4.5. *Stakeholder Influence on Sustainable Supply Chain Strategies & Practices*). It raises further concerns over intent, or its absence, and the role of alternative discourses in this domination/resistance dynamic (Hardy & Thomas, 2014). There is a need to further research these dynamics between opposing groups within SSCM and interorganisational relationships literature.

The mechanisms of power that companies within this study were seen to leverage were numerous and, again, suggested a sophisticated, instrumental understanding of this influential mechanism (Sections 4.4 & 5.2.1). In essence, these isomorphic mechanisms were manipulative. Depending on the tactic, these mechanisms may be coercive, mimetic or normative. In this manner, a company can exert institutional isomorphic change (DiMaggio & Powell, 1983). For example, in taking advantage of the scale of business, companies are leveraging their size by negotiating favourable dealings and partnerships. Some actions are coercive, such as mediated formal pressures from contract, purchasing power, and mergers and acquisitions. Companies are also leveraging non-mediated power bases such as industry and sectoral activities and their position of leadership, to scale-up and homogenise sustainability principles, procedures and practices. Another aspect is how a company leverages partners for access to resources or stakeholders they do not have direct access to. Due to the high level of uncertainty and risk inherent in sustainability, another aspect is the mimetic process (DiMaggio & Powell, 1983). As such, discourse is performative and instrumental in this isomorphism as was discussed in 'taxonomic trends in sustainability' (Section 5.2.4. *Why a Failure to Consider Principles Leads to an Economic Blind Spot*). As DiMaggio and Powell (1993) explain, these constructs are rarely empirically distinct. In this instance, due to the high value placed on authority and legitimacy, mimetic isomorphism is synonymous with coercive isomorphism between the followers and leaders. However, because stakeholders and collective action are tenets of SSCM, stakeholders are a normative pressure. The premise of SSCO can be understood by the structure of this relationship whereby the degree of sustainable orientation is determined by this isomorphism and the network structure as a mechanism to manipulate it (Section 5.2.3 - Proposition 1b).

At a functional level, managing interorganisational relationships and the influence of stakeholders is central to success. The levels of embeddedness are occurring at a systemic, sectoral, supply chain, and core business level, in terms of how sustainability is being scaled-up (Section 4.3.3). These activities are illustrative of the holistic view that many scholars and practitioners have been calling for (UNDP, 2017b; Euromonitor International, 2017a; Pagell & Wu, 2009; Carter & Rogers, 2008; Seuring & Müller, 2008b). They also illustrate how the power of the stakeholder is appropriated at different levels of the economic system for specific purposes, i.e. commercial or non-commercial partnerships.

5.4.5. Alignment with Existing Literature

Stakeholder Influence on Sustainable Supply Chain Strategies and Practices

Another conceptualisation of SSCM considered was Seuring and Müller's (2008b) and Wolf's (2011) as they put forth the influence of stakeholders on a company's strategic action. This thesis examined the influence of stakeholders through the lens of SNT.

The findings concluded with similar findings by Seuring and Müller (2008b) and Wolf (2011) who both identified strategies for risk management and sustainable products, with Wolf adding a third based on environmental impacts. However, this thesis has also developed their work on several levels.

It has extended the concepts of sustainable products (Seuring & Müller, 2008b), corporate sustainability and supply chain sustainability strategies (Wolf, 2011) by considering ethics. Extant literature demonstrated how companies create value in sustainable products and services through new markets, indicative of Stages 1 & 2 business models (Lubin & Esty, 2010). This research shows how they are now creating sustainable value in their business models, Stages 3 & 4 in value creation (Lubin & Esty, 2010). By doing so, the company becomes more eco-centric and ethical. Hence, value is captured in the inherent value of the company, including its ethical principles (Sections 4.4 & 5.2.1). These ethical principles govern the company's behaviour in the supply chain network and how it relates to stakeholders, i.e. resistant or receptive (Section 5.2.1, Figure 5.2).

This study has provided deeper insights into why and how a company chooses either of these strategies. The ego/eco-centric orientation explains why strategies are chosen and how this results in different practice archetypes (Section 5.5). This can provide information in managing relationships as it clarifies partners' behaviour and strategic agenda.

While the authors made some reference to the practices that each strategy engenders, such as cooperation and resource fitness, they did not formally discuss them in-depth or classify them. The conceptual framework and taxonomic table provide this clarity. This will engender greater understanding and alignment in future relationships (Section 5.5).

5.5. SSCM Conceptual Framework

It is proposed that, given the conceptualisation of SSCM, based on unique core tenets, that supply chain process management aligns, implements and maintains key sustainability

processes by utilising the following framework to optimise the sustainability of the supply chain (Figure 5.8). The causal mechanisms determine the level to which sustainability managed across the entire supply chain.

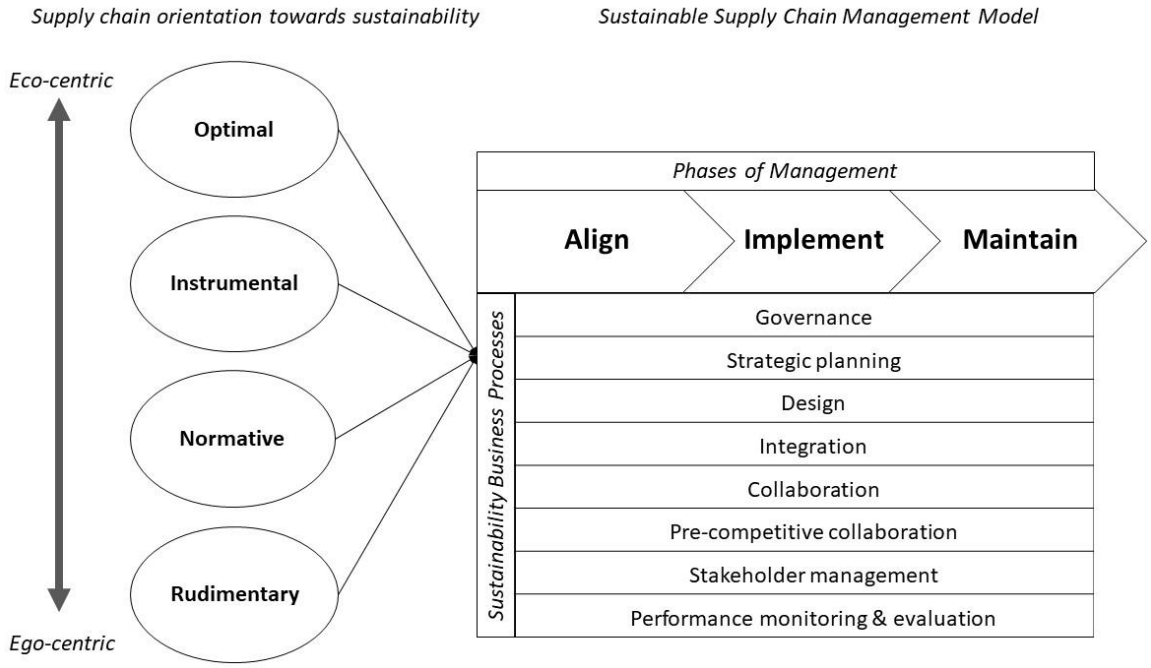


Figure 5.8: Conceptual Framework of How to Manage Sustainable Supply Chains in Practice

Supply chain orientation towards sustainability is based on the propositions set forth in Section 5.2:

> *P1. Sustainability orientation determines organisational orientation and network orientation.*
>
> *P1a. Organisational orientation determines the extent to which an organisation engages with sustainable supply chain management, which in turn will affect the sustainable supply chain orientation.*
>
> *P1b. Network orientation determines the extent to which a network engages with sustainable supply chain management, which in turn will affect the sustainable supply chain orientation.*
>
> *P1c. Organisational orientation and network orientation determine sustainable supply chain orientation.*
>
> *P1d. Sustainable supply chain orientation determines how sustainable supply chains are managed in practice.*

The typologies of practice occur as patterns among the forces of centrality and density within the network. These mechanisms of power explain how the two units of analysis – organisation and network – interact to determine the orientation of the supply chain

towards sustainability, the principles these are based on and the styles of practices that emerge as a result of orientation towards certain principles. These have been categorised theoretically into archetypes - *Optimal, Instrumental, Normative* and *Rudimental* - based on the following proposition:

> *P3. Network determinants are causal mechanisms in sustainable supply chain orientation and therefore affect how key sustainability processes are managed in practice.*

These archetypes determine the character and degree of orientation towards sustainability captured in its SSCM activities and behaviours. Specifically, they explain how key business processes are managed in practice. These processes are based on the following proposition:

> *P2. A change in core tenets and therefore a reconceptualization of SCM to incorporate sustainability, which in turn requires a new set of processes in an increasingly integrated, collaborative and embedded network.*
>
> *P2a. The key processes in sustainable supply chain management are strategic planning, design, governance, integration, collaboration, pre-competitive collaboration, stakeholder management and performance monitoring and evaluation.*

In terms of the SSCM Framework (Figure 2.3):

- *Propositions 1 (including 1a -1d)* explain the sustainability and network structure elements.
- *Propositions 2 and 2a* explain the sustainability, business process and management component elements.
- *Proposition 3* explains all elements operating together when the model is applied in practice.

Consistent with the theoretical claims in the synthesis of the literature review (Section 2.4.3; Figure 2.7), this framework and its propositions are explained by the causal mechanisms of sustainability orientation and stakeholder network theory. The effects of principles on practices are that variations in principles create variations in behaviours. These have been classified into practice archetypes (Section 5.4.1) with a complementary typology (Table 5.2).

These principles range along a spectrum of sustainability orientation from ego-to eco-centric, that requires a change in business practices, alters the socio-economic paradigm

and is inextricably linked to the business model. An organisation needs to understand its own organisational orientation, sustainable value proposition and business model as these will determine the management component, types of links and style of practice. An organisation also needs to map the network, understand stakeholders' sustainability orientations, potentially divergent principles and priorities and determine how to manage these for supply chain orientation. Its organisation orientation towards sustainability will determine its attitude towards stakeholders and how they are managed. As such, the more eco-centric an organisation and the network become in their orientation towards sustainability creates greater sustainability and stakeholder integration and value. Therefore, sustainability orientation of the business model, and by extension the supply chain, is strategically important and critical to the competitive advantage and sustainability.

As such, power and influence over the supply chain network members is important, hence the necessity to consider stakeholder network theory in how the eco-premium is captured. Especially as stakeholders will not necessarily have the same sustainable value propositions and this potential divergence needs to be understood and managed for supply chain alignment and orientation. This results in issues of dependence asymmetry and joint dependence depending on the degree of orientation towards eco-centricity. An organisation can leverage its position in the network (degree centrality, betweenness and eigenvector) and legitimacy to form and influence clusters to determine types of politically motivated principles and practices. In this manner power is treated as a possession leveraged to legitimise norms and behaviours.

In order to understand the theoretical proposition that different principles created different practice, the study required an object to observe in the real-world at work. For this, the research turned its attention to business processes, as the set of activities that embed sustainability across the supply chain. Thick description of a set of key business processes necessary for embedding sustainability into the SCM framework (Figure 2.3) has been provided. Theses have been further contextualised within the SCM framework, specifically the management component, by explaining how these processes are managed in phases that requires different sets of activities and links (Table 4.3). Thus, having substantiated, amended and extended theoretical and thematic sensitising concepts in the SSCM framework (Figure 2.7), it was possible to produce a conceptual framework for managing business processes in SSCM (5.8).

5.5.1. Taxonomic Classification of Practice Archetypes

A review of key concepts in SSCM practice literature presented a categorising of SSCM activities into styles of practice (Table 5.1). This was conceptualised theoretically and examined empirically bringing forth several findings worth further discussion (Section 5.4).

This taxonomy – generalisable to theory - emerged that explained the relationship between principles, processes and practices archetypes as a result of organisational orientation and SNT. This has led to the problem of anomalies which do not fit the taxonomy raised by Snowden (2011), i.e. the Co-op and Colcocoa. It also infers a classification of mutually exclusive and discrete phenomenon (Doty & Glick, 1994). This is not that case in this study even though there is an element of hierarchy through the eco-centric rules. In fact, it was a rule that was not predicted theoretically or conceptually but emerged from the empirical findings that had the greatest import on the relevancy of taxonomy, i.e. economic system. Those companies that behaved under the rules of the orthodox economic system adhered to the classification systems. Those that did not, i.e. alternative economic and business models, behaved differently. Therefore, the classification reverts to a typology of "*conceptually derived interrelated sets of ideal type*s" (Doty & Glick, 1994:232). The inference being, if an alternative economic and business paradigm was examined this would change practices. For example, the Co-op exemplified all the ideal behaviours of an optimal archetype yet did not fit with the theoretical proposition that inferred it should be normative or rudimental, even though its network position placed it in a solitarian/transactional position in response to stakeholder pressures. This provides interesting insights into future research of alternative business model practices and the possibility of retheorising SNT with a shift in its fundamental principle of resistance to receptivity of stakeholders. This finding has been previously highlighted in Sections 5.4.5 *Stakeholder Influence in Sustainable Supply Chain Strategies and Practices*, 5.4.4. *Stakeholder Network Theory* and 5.2.4. *Eco-centric Theory* regards the emerging theoretical understanding that is indicating a paradigm shift. It also substantiates the theoretical underpinnings of this study regards organisational orientation and stakeholder influence summarised in the eco-centric theory (Section 5.2.4).

5.5.2. Critical Reflection on Conceptual Framework with Reference to Extant Literature

This study took an inductive approach to building the conceptual framework (Miles &. Huberman, 1994). As a result of this approach, theoretical propositions, the conceptual framework and taxonomy of practice archetypes arose from empirical findings (Section 5.5).

The germinal logic for this thesis was the discourse on multiple sustainability conceptions across the supply chain and its progenitor fields of organisational and management studies and social science, both in academia and practice (Sarkis, 2003; Burgess et al., 2006; Glavic & Lukman, 2007; Johnston *et al.,* 2007; Carter & Rogers, 2008; Sarkis *et al.,* 2011; Boons *et al.,* 2012; Ahi & Searcy, 2013). Of particular interest was the consequence of this unique effect on activities and behaviours. Research into this phenomenon explained several influences that shape our evolving understanding of SSCM: different principles create different practices; the ideal sustainable system is a misnomer; certain principles offer a competitive advantage, and principles are institutionalised by trends in the hegemonic capitalist economic system (Section 5.2). As a result, there is a power asymmetry propagating values defined by powerful actors in the supply chain and institutionalising norms by leveraging power seeking to benefit from these issues (Sections 2.2.2, 2.4.3, 4.3 & 5.4).

Another core component of the thesis was identifying key business processes. To do so, it has challenged the work of two fields of study - processes and practices. The thesis has successfully argued that clarification between the two is necessary due to the 'sustainability effect' in SCM (Sections 2.2.2., 4.3.3. & 5.4). Therefore, this thesis has repositioned the work of Zhu & Sarkis's (2004; 2005), Vachon and Klassen, (2006), Morali and Searcy (2013), Beske et al. (2014), Govindan et al. (2014a), Carter et al. (2017), by creating a clear distinction between processes and practices (Sections 2.5.5. & 5.4).

These findings have produced a conceptual framework of how to manage sustainable supply chains (Section 5.5) building on the sensitising concepts (themes and theories) articulated in the conceptual framework proposed in the literature (Section 2.4, Figure 2.7). In doing so, it has created a new theoretical understanding of SSCM. Through the theoretical propositions, this thesis has extended the work of Lubin and Esty (2010) by considering stakeholder value in their value creation model, while enriching the understanding of practice archetypes by providing an additional taxonomic class –

capturing value in the business model. The study has also provided greater insights into a company's response to stakeholder pressure and extending the work of Rowley (1997). Theoretical development explains the gestalt of stakeholder pressure to effect SSCO and SSCM archetypes. It also explains how as a company becomes more eco-centric, its attitude to stakeholders' changes from resistance to receptivity. The thesis has also extended the work of Shrivastava (1995), Banerjee, S.B. (2001), Ferrell et al. (2010), Pullman and Dillard (2010), Terpend and Ashenbaum (2012) by synthesising their streams of literature into a spectrum of ego/eco-centric orientation, which along with SNT, explains the determinants for practice archetype typologies. It has also provided further insight into SSCM processes mechanisms by describing how they are managed in practice given variations in sustainability principles. Therefore, this study has extended our understanding of the arc of integration (Frohlich & Westbrook, 2001), phase of collaboration (Spekman et al, 1998; Gunasekaran et al., 2015), relational and structural links in the management component (Appendix II for a full list of authors contributing to this literature), governance models (Vurro et al., 2011), and level of embeddedness (Granovetter, 1985; Jones et al., 1997; Rowley, 1997; Spekman et al., 1998; Vurro et al., 2009).

In order to understand how sustainable supply chains are managed in practice, it was important to carry out a network study and analysis. There was a necessity for a network view given the increased interdependence on stakeholder relationships to be sustainable. Also, academia and practice concur that to be sustainable, sustainability must be fully integrated into the business and across the supply chain. SSCM requires a fully integrated, collaborative, holistic and systemic view, i.e. an understanding of the network and its nodes. This study has contributed to research by carrying out social network analysis on a supply chain network with two embedded units of analysis – the network and commercial company. The units of analysis were selected to examine the mechanisms of power that determined orientation towards sustainability, the principles this orientation is based on, and the practices that emerge, as illustrated in Sections 5.2.1, 5.2.2, 5.2.3, 5.2.4, 5.4.1, 5.4.2 and Figure 5.12.

5.6. Summary of Analysis and Discussion

This research project had one aim: *to understand how to manage sustainable supply chains in practice*. In order to do so, it required an exploration of sustainability concepts in SCM. The literature alluded to the diversity of sustainability concepts in SCM, however, there has been no study that has examined these in detail and sought to understand the implications of this phenomenon on practices in SSCM. To do so required a reappraisal of sustainability concepts, its principles and dimensions from which strategic priorities are identified. What has emerged is a range of findings from how sustainability is conceptualised in practice and academically, the effects of principles on practices, and how power is used as a mechanism to leverage principles and practices.

This chapter analysed the sustainable chocolate supply chain network through two units of analysis using respective theoretical lenses. The central themes were sustainability principles, processes and practices. The central theory was mechanisms of power and how this manifest through organisational orientation and network structure. This chapter explained the causal mechanisms that determine how sustainability is conceptualised, orientated and managed across the supply chain (Section 5.5 Propositions). There are homogenous and heterogeneous principles, priorities, processes, management systems and practices at a network and organisational level respectively. These heterogeneous sets can be summarised and classified as archetypes of practice (Section 5.4.1; Figure 5.6; Table 5.2). The conceptual framework provides a useful guide to embed sustainability (Section 5.5; Figure 5.8). An exploration of the issues and challenges, given the proliferation of conceptualisations, provides rich insight and thick descriptions into how companies drive their sustainability agenda across the supply chain using a range of mechanisms.

It would appear that a broad conceptualisation, that favours dimensions over principles is an economic and political discussion. The ideal system is an intentional misnomer. It emphasises an environmental and social priority, with economic considerations generally favouring the sustainability of the business and the dominant economic system rather than that of its stakeholders and any alternative economic paradigms. From the empirical component of this study, a range of sustainable business models emerged illustrative of existing and new economic theories both within the capitalist and alternative paradigms.

CHAPTER 6 CONCLUSION

6.1. Introduction

This chapter concludes with what the research has found out and why it matters in a summary of the main points of the study. This leads to a critical overview of the research findings and how they fulfilled the research objectives. This provides the context to consider the research contributions, limitations, review of methodology and proposals for further research.

6.2. Summary of Main Points of Study

This thesis had the aim of exploring whether there was a relationship between principles and practices affecting how processes are managed. This was conceived in an adaptation of the SCM framework, developed by Douglas et al. (1998) (Figures 2.2 & 2.3). The resulting structure of causal explanation was a conceptual framework of how to manage sustainable supply chain business processes in practice (Figure 5.8).

To do so required key business processes to be identified and described in a process model (Figure 5.4). This began by clarifying the difference between processes – a set of business activities, and practices – the behaviours, norms and customs of a community (Section 2.2.2. *Differentiating Processes & Practices*). From this, a set of key business processes were identified in the literature (Section 2.3. *Systemic Literature*) and elaborated empirically (Section 5.3. *Processes*). The processes were described in various contexts of the management component – alignment, implementation and maintenance – to provide an in-depth understanding of how the elements of the SSCM framework integrated. This produced a business process model that explained processes as objects, having a structure that explained the stages of management (Figure 5.8). This was examined empirically and substantiated with real-world issues. As a result, an unanticipated and additional causal

mechanism is performed, alluding to a play within a play. The business model is the mechanism which generates a management response to real-world issues (Figure 4.3).

The research also found that principles do effect practices and that these can be cast into archetypes – *optimal, instrumental, normative* and *rudimental* (Section 5.4.1). These four archetypes are determined by the causal mechanisms of organisational orientation and network determinants. Eco-centric theory was developed to describe causality of sustainability practices (Section 5.2.4 *Eco-centric Theory*). The orientation of the supply chain is determined by the degree of eco-centricity negotiated between the company and its network members, and their respective orientations. Stakeholder network theory was used to explain power dynamics in negotiating the sustainability of the supply chain through the proxies of centrality and density to leverage power and value and influence principles and practices (Sections 5.2.2 & 5.4.1).

Previous research by Rowley explained that the "*density of the stakeholder network surrounding an organization and the organization's centrality in the network influence its degree of resistance to stakeholder demand.*" (1997:888). However, a new paradigm that challenges two characteristics of the theory – stakeholder and density - is revealing itself (Section 5.4.4). Under the tenets of sustainability, it has emerged that companies are receptive, rather than resistant, to stakeholder influence (Sections 5.2.1 & 5.4.5). The participants showed a clear preference for how they considered stakeholders contingent on their degree of eco-centrism (Section 4.4; Table 5.12). Eco-centric organisations have a different response to stakeholder pressures in comparison to ego-centric organisations, the former being receptive, the latter resistant. An interesting anomaly to SNT was observed in more eco-centric organisations, indicative of a paradigm shift. Both ego and eco-centric organisations placed themselves in central positions in their networks, indicative of the strategic value of sustainability and the need to influence the supply chain network (Table 5.12). Density characteristics of SNT behaved differently also. At first, the analysis showed that it behaved as expected. Density was encouraged by eco-centric organisations in order to increase the number of links. This encouraged "*voluntary diffusion of norms, values, and shared information*" (Oliver, 1991:171). However, the theoretical diversion occurred in Rowley's (1997) and Vurro's (2009) predicted behaviours in highly centralised and dense networks. On the surface, conformity was evident in and only possible because of how sustainability was defined – shared responsibility, collective action, and a broad definition

avoiding altruistic consideration of the economic dimension or principles. On a deeper level, leading organisations were taking a commanding role, using legitimacy and manipulation to determine how sustainability is conceptualised.

6.3. A Critical Overview of the Research Findings

The purpose of the research design logic was to answer the main research questions and aim through designed objectives. Each objective was fulfilled, and the findings offered an in-depth understanding of the phenomenon. Objectives 1 – 3 were paraphrased thematically as principles, processes and practices.

6.3.1. Research Objective 1

To explore how the concepts of sustainability and SCM merge

The purpose of Objective 1 was to create new insights into our conceptual understanding of SSCM by extending theoretical propositions to help understand the phenomenon (Appendix X *Summary or Research Design Plan*). This objective focused on the conceptual narrative in the literature and analysis of empirical data to provide deeper insights and enhance our extant knowledge. Thematically, it focused on how sustainability is conceptualised in SCM by multiple stakeholders.

Conceptualisation of SCM in Literature Providing Research Focus

From the examination of SCM literature, key concepts emerged that contextualised the research agenda under the relationship management characterisation of SCM and Douglas et al.'s model of SCM (Figure 2.2).

This perspective of SCM highlighted the importance of partnership and collaboration to achieve a strategic goal but to do so meant a change in mindset and behaviour away from traditional transactional relationships (Sections 2.2.1. *Histology & Theoretical Foundations* and 2.2.2. *Relationship Management*). Another feature to emerge from the extant literature on SCM were the precedents for paradigm shifts due to new tenets (Sections 2.2.1. *Histology & Theoretical Foundations*).

The literature also revealed the theme of relationship interdependence and embeddedness which was contextualised within SNT for theoretical consistency (Section 2.2.2. *Relationship Management*). This theme introduced the notions of power asymmetry

and the quality of social relations. It also provided a rationale for using links as criteria to understand behaviour (Section 2.2.1. *Management Component*).

The review revealed the importance of differentiating processes and practices (Section 2.2.2 *Differentiating Processes & Practices*). This issue became relevant once again in the SSCM literature in that the two terms are used interchangeably (Section 2.2.5 *Sustainability Processes*). It was argued this is a mistake given the import of how values, i.e. sustainability principles, are in determining practice (Section 2.4). This distinction re-introduced the importance of power in this narrative in how it influences practices (Sections 2.4.2. *Stakeholder Network Theory* & 2.4.3. *Practices Types*).

It became evident that power is central to relationship management both in the quality of relational exchanges and the overall structure that influences behaviour (Sections 2.2.2. *Power*; 2.2.4. *Conceptual Issues in SSCM;* 2.2.5. *Elements of SSCM;* 2.3.2. *Themes & Trends* - Table 2.13; 2.4.3. *Conceptual Framework*). The literature provided the constructs under which power mechanisms could be observed (Section 2.4.2. *Stakeholder Network Theory*). SCO examined the constructs of power and partnership regards the strategic implications of tactical activities at organisational, stakeholder and network levels (Section 2.4.2. *Organisational Orientation*). It captured the concept of supply chain competitiveness through collaborative advantage (Christopher, 1992) and how this required a common worldview of values and goals between partners (Spekman *et al*., 1998). It also reinforced the importance of the network view in terms of understanding organisational orientation in the context of supply chain orientation as a network of stakeholders orientated towards a common goal (Mentzer *et al*., 2001). The significance of the focal company perspective as holding an important position of power in which to influence orientation through power asymmetry was a significant theme in this discourse (Section 2.2.2. *A Focal Company Perspective*). This resulted in the consideration of the ethical and political implications of the research and led to *Research Objective 4* and *Research Question 1.4.*

Finally, the analysis of SCM conceptualisation also highlighted the traditions of positivist bias (Sections 2.2.1. *Histology & Theoretical Foundations*). This will be discussed in Section 6.4.4 *Methodological Contributions*.

Conceptualisation of Sustainability in the Literature

A review of how sustainability is conceptualised was provided at broad systemic, business sustainability and SSCM levels (Section 2.2.4). It established that sustainability has emerged

as a megatrend (Appendix I). In light of its association with globalisation, this has reinforced the themes of the focal company and critical and ethical questions of power. The review highlighted the diversity of interpretations by multiple-stakeholders, providing a research agenda and focus on specific conceptual issues that bounded the phenomenon.

How sustainability is conceptualised is through its three dimensions and the principles that give them value. Sustainable development is a commonly referenced systemic principle across private, public and social sectors. However, having been appropriated by business, the dominant concept is TBL (Elkington, 1997). There is also a range of capitalist and alternative economic conceptualisations of business sustainability that capture sustainability value in the business model based on principles of ethics and responsibility (Section 2.2.4. *Business Sustainability*). It became evident that there is limited research concerning the management of sustainable principles in terms of the divergent agendas across the network, and how to ethically govern them – inherent in the values and orientation of business models (Section 2.2.5 *Network Structure*).

Conceptualisation of Sustainability in SSCM Literature

Merging the two concepts of sustainability and SCM revealed interesting conceptual insights (Section 2.4), that lead the researcher to reflect on how these issues affect managing supply chains (Section 2.4.3 *Conceptual Framework;* Figures 2.6 & 2.7). Specifically, the researcher was interested in understanding how sustainability affects the SCM Framework (Figure 2.3), given the variations in principles. This resulted in the primary research question: *How do varying sustainability principles among stakeholders in the supply chain network effect the management of processes in practice?*

On review, the SSCM extant literature, the trend of proliferation continued as exemplified by Ahi & Searcy (2013) and Boons et al. (2012). However, there is a lack of knowledge regarding the impact of SSCM theories in the practices of organisations and management (Taticchi *et al.,* 2014). From the literature, issues arising (Section 2.2.6) and tenets of SSCM (Section 2.4.1) helped shape the study as they provided sensitising concepts that explain the effect of merging sustainability with SCM (Section 2.2.5 - Figure 2.3).

SSCM requires the holistic and full integration of sustainability across the supply chain. To do so, stakeholders and potential partners are identified for collaboration (Sections 2.2.1. *&* 2.2.5. *Network Structure*). A wider view of stakeholders is taken into consideration in SSCM, compared to SCM, as the interdependence among relationships has increased.

This changes the boundaries of activity, expanding the network view, due to a shift from competitive to collaborative advantage. It also changes the approaches and practices, placing emphasis on a new set of structural and relational links that are the managerial methods that integrate business processes (Section 2.2.5 *Management Component*). In summary, while the extant literature is substantive in explaining how sustainability and SCM merge, there is an oversight in failing to consider sustainability principles. However, no research systematically addressed how principles affect SSCM even though the importance of this has been recognised (Andersen & Kumar, 2006; Andersen & Skjoett-Larsen, 2009; Banerjee *et al*., 2009; Boons *et al.,* 2012; Ahi & Searcy, 2015). This led to the initial secondary research question: *Research Question 1.1. To what extent, and in what ways, are sustainability principles related to SSCM?*

Generally, sustainability is defined by the dimensions rather than the principles that determine how they are managed. This seems to offer an explanation to Carter and Rogers (2008) finding that there is not much definitional diversity and the resulting impression that the differences are not enough to affect practice. This is further compounded by the fact that much of the research has focused on the dimensional aspects as academia and practice seek knowledge on how to measure – a legacy of orthodox economic accounting systems (Section 2.3). Therefore, there is a dominance of performance literature in this domain (Appendix VII, Table VII:6). This is also indicative of the legacy of logistics and operations management traditionally positivist philosophical paradigm. This finding became evident in the SLR component, rather than the narrative review (Section 2.3.1).

Another consideration is that sustainability provides a competitive advantage and that it is a strategic issue (Sections 2.2.4 *Conceptual Issues in SSCM* and 2.3. *SLR*). Therefore, it centralises the importance of principles as the guiding system of beliefs and reasoning inherent in the values and orientation of business models that required further research (Section 2.4.1. *Thematic Elements*).

In a review of the dominant definitions of SSCM (Section 2.2.4 *Conceptual Issues in SSCM*), the study revealed a bias in favour of the focal company (Carter & Rogers, 2008; Ahi & Searcy, 2013). Substantiating this, was the SLR, which showed that these definitions are providing the framework for subsequent studies, perpetuating this conceptualisation (Section 2.3.2. *Themes & Trends* – Table 2.13). It also introduced the concept of political

impact and the role SSCM research has to play in producing discourse in its progenitor disciples of business studies and systemic sociocultural practice.

In conclusion, the extant literature was scant in explaining to what extent and in what ways sustainability principles are related to SSCM. *Research Question 1.1.* was answered conceptually (Section 2.4), empirically (Chapters 4 & 5) and theoretically (Chapter 5) and summarised in Section 6.3.3. *Research Objective 3.* The conceptual findings of *Research Objective 1* also led to the assumption that embedding of sustainability in SCM was leading to a paradigm shift in SSCM (Section 2.4.1 *Thematic Elements*). However, having appraised the issues and tenets regards embedding sustainability into the SCM model, a major research issue appeared within business processes in order to complete the paradigmatic review – a business process model did not exist. This provided the rationale for the next objective – *Research Objective 2*.

6.3.2. Research Objective 2

To describe key business processes in SSCM

The purpose of this objective was to describe key business processes in SSCM. This was achieved in two parts. Firstly, the extant literature systematically defined, mapped and characterised key business processes in SSCM. Secondly, this provided a conceptual description (Section 2.3) and model to examine empirically (Section 5.3). This provided a thick description of the processes and their subprocesses (Section 5.3.9). Empirical data and analysis developed the model (Figures 5.4 & 5.5).

Conceptual Description

In order to address this research objective, narrative and systematic literature reviews were carried out to provide a model for examination empirically. This presented a nomothetic element to the research design (Section 3.4.1).

Within the narrative literature, two pertinent issues were revealed. Firstly, the terms processes and practices were used interchangeably (Section 2.2.2). This was substantiated in the SLR (Section 2.3.2. - Table 2.12). Secondly, there was no model of key business processes for SSCM, as existed in its progenitor SCM framework (Section 2.2.1 *Business Processes*). This led to the conclusion that there was a gap in knowledge regards what these

processes are and the patterns that exist among them. From this, the conceptual business process model was summarised (Figure 2.5).

The SLR demonstrated the relevancy of producing such a model given the critical mass of articles within this nascent field (Appendix VI). This produced insights into how the process literature is classified, and its content (Section 2.3). SSCM is a vibrant research field that is growing in popularity. This was highlighted in the time distribution of articles and journals that is ever increasing (Section 2.3.1). It also revealed how certain authors discourses within a paradigm dominated the field, especially Sarkis, Zhu, Lai, Govindan and Diabat on performance in GSCM, both in terms of publications and citations. This finding supports more general discourses on SSCM and how it is conceptualised and defined (Section 2.3.2). For example, the literature's predisposition towards an understanding of processes as operational and manufacturing rather than business. The emphasis on one or two dimensions of sustainability being examined, even though definitionally literature commonly refers to the three pillars. The strong performance aspect, perpetuating the TBL accountancy-based model and conceptualisation of sustainability as measurable dimensions rather than behavioural principles. This led to the deduction that the majority of research is helping improve the efficiency and effectiveness of SSCM within one dominant paradigm (Section 2.3.3). Whereas, it is argued that by its very ethos sustainability requires the consideration of alternative paradigms when considering stakeholders and their sustainability principles. It is well established that SSCM requires partners working towards a common goal (2.4.2. *Organisational Orientation*), but in its ethos, it also demands consideration of stakeholders needs for a more sustainable system, otherwise, it is not sustainable - merely an approximation of it.

Within the content analysis, the literature on processes and practices were clarified systemically (Table 2.12). Analysis also highlighted the theme of power influencing practices and its frequency in the literature (Table 2.13). It showed how power is used in a different way in SSCM compared to SCM in terms or practices and mechanisms. It also reinforced the themes of communities of practice, stakeholders and the focal company. A significant contribution of the SLR was the inclusion of stakeholder management that had not been identified narratively. This reinforced the validity of the methodology and provision of two search strings (Section 3.4.1). As a result, seven key business processes were defined and characterised (Section 2.3.2 & Figure 2.5). A list of management

components illustrated the management patterns among the processes and provided a structure to examine them by (Figure 2.2). This was then examined empirically, from which research propositions were developed.

Empirical Description

Empirical insights developed the characteristics, sub-processes and relationships of the processes. This created a comprehensive understanding of the model and its structure (Section 5.3.9. – Figure 5.4). The processes and sub-processes are closely aligned and sometimes overlapping, substantiating the holistic and integrated tenet of SSCM. The network structure provides a holistic view of these generic processes across the whole supply chain and how to manage the relationships therein. From a management perspective, how these processes integrate with the management component can be explained through the business process model of alignment, implementation and maintenance (Section 4.3.3). The function of processes has changed from being process to impact driven. Their relationships, through the process model, are actualised in response to real-world events, therefore their character is heterogeneous depending on their context and the mechanisms that generate them into actual events. Therefore, thick descriptions of how they are managed in practice were provided (Sections 4.3.3 & 5.3).

As a result of checking the conceptual data empirically, the following propositions were put forth. In answer to *Research Questions 1.1. and 1.2,* the findings set forth two parts in answering the questions. Firstly, following an exploration of key themes and concepts in the narrative literature review that was substantiated empirically, it is proposed that:

> *P2. A change in core tenets and therefore a reconceptualization of SCM to incorporate sustainability, which in turn requires a new set of processes in an increasingly integrated, collaborative and embedded network.*

Secondly, in a review of key processes in SSCM literature, empirical findings extend our understanding of key business processes in SSCM:

> *P2a. The key processes in sustainable supply chain management are strategic planning, design, governance, integration, collaboration, pre-competitive collaboration, stakeholder management and performance monitoring and evaluation.*

These findings are contextualised within the SSCM Framework in *Research Objective 3,* which explains how these processes are managed in practice given the variations in sustainability principles.

6.3.3. Research Objective 3

To explain how SSCM processes are managed in practice given the variation in sustainability principles

The purpose of this objective was to provide a new theoretical and conceptual understanding in discipline and practice. This was carried out through the research design logic (Appendix X) that systematically answered each of the research questions.

Theoretical Propositions

The research objective is answered in two parts. Firstly, it draws upon *Research Question 1.1* to provide a partial explanation (as discussed in Section 6.3.1. *Research Objective* 1). Principles affect how the supply chain is managed sustainably in practice. Principles effect practice. They do so because they are symbiotic: the former is the concept; the latter is the action. Principles are the belief system that informs the behaviours of a community – be it an organisation, industry, supply chain, business sector or social system. Therefore, practices are formed by principles. This was substantiated empirically through two units of analysis as communities of practice – the network and commercial company (Sections 4.3, 4.4, 5.2 and 5.4). Secondly, it is possible to understand this relationship through the management of sustainable business processes (Section 5.3). The relationships between principles, processes and practices were described in the following propositions and in doing so answered *Research Question 1.3.* These theoretical propositions explain the mechanisms in the relationship between principles, processes and practices as follows:

> *P1. Sustainability orientation determines organisational orientation and network orientation.*
>
> *P1a. Organisational orientation determines the extent to which an organisation engages with sustainable supply chain management, which in turn will affect the sustainable supply chain orientation.*
>
> *P1b. Network orientation determines the extent to which a network engages with sustainable supply chain management, which in turn will affect the sustainable supply chain orientation.*

P1c. Organisational orientation and network orientation determine sustainable supply chain orientation.

P1d. Sustainable supply chain orientation determines how sustainable supply chains are managed in practice.

The typologies of practice occur as patterns among the forces of centrality and density within the network. *Optimal, Instrumental, Normative* and *Rudimental* are the typologies of practices that were created as categories based on the following proposition:

P3. Network determinants are causal mechanisms in sustainable supply chain orientation and therefore affect how key sustainability processes are managed in practice.

These typologies determine the character and degree of orientation towards sustainability captured in its SSCM activities and behaviours. Specifically, they explain how key business processes are managed in practice. These processes are based on the following proposition:

P2. A change in core tenets and therefore a reconceptualization of SCM to incorporate sustainability, which in turn requires a new set of processes in an increasingly integrated, collaborative and embedded network.

P2a. The key processes in sustainable supply chain management are strategic planning, design, governance, integration, collaboration, pre-competitive collaboration, stakeholder management and performance monitoring and evaluation.

Conceptual Framework

This study took an inductive approach to building the conceptual framework (Miles &. Huberman, 1994). It explains graphically how processes are managed in practice given variations in sustainability principles, i.e. the purpose of *Research Objective 3*. Categorical 'bins' are used to depict theoretical constructs, processes and events that map the relationships between principles, processes and practices respectively. In this instance, the process model and discrete practices were studied, and theoretical variables were used as casual mechanisms to describe the relationship between.

Two theoretical constructs described the relationship between principles, processes and practices: sustainability orientation and SNT. Sustainability orientation explained how an organisation orientates towards sustainability. Within it, eco-centric theory (Section 5.2.4) emerged as a mechanism to explain the relationship between sustainable processes and practices in that principles determine how processes are managed in practice, otherwise,

they remain objects that have not generated into actual events, i.e. practices. Within this mechanism, liabilities occur: just as eco-centrism is a power to cause sustainable practices, alternatively ego-centrism is a liability resulting in less sustainable practices.

By its very nature, SSCM concerns interorganisational relationship management of multiple stakeholders, each with their own organisational orientation. This can be conceptualised as a multi-stakeholder network. Therefore, SNT was used to explain the conditions under which different practices occur (Sections 5.4.2 & 5.4.1). Centrality and density were used as causal mechanisms to describe the power an organisation has to leverage over stakeholders, and *vice versa*, to influence principles and practices. These practices were captured as events, that categorised archetypes of practice (Figure 5.6) and their typologies (Table 5.2) based on the causal mechanisms as determinant forces in explaining how processes are managed in practice.

As a result of this approach, theoretical propositions, the conceptual framework and taxonomy of practice archetypes arose from empirical findings (Section 5.5). This arose from a thematic and theoretical analysis of the empirical data. Thematic elements and theory (Section 2.4) were used as sensitising concepts articulated in a conceptual framework (Figure 2.7) to help examine, develop and explain the relationships and patterns among elements of the SSCM Framework (Figure 2.3).

6.3.4. Research Objective 4

To analyse and discuss implications for academics, practitioners and policymakers.

This objective is answered in the Section 6.4.1. *Theoretical Contributions*, which offers a contribution to the literature with a new theoretical understanding in discipline. Section 6.4.2. *Practical Contributions* does the same in practice for managers and organisations. Section 6.4.3. *Policy Contributions* discussed the issues for society and government. With concluding contributions to methodology research.

6.4. Research Contributions

The following section details the theoretical, practical and policy contributions of this research.

6.4.1. Theoretical Contributions

The thesis contributes to knowledge by studying the conceptualisations of sustainability in SCM from both the perspective of a commercial company's sustainability orientation and those of its supply chain network members. This is the first time it has been conducted to provide a conceptual framework that explains how to manage supply chains sustainably. The themes discussed below were those considered most pertinent to the aim and objectives of the study (Section 2.4).

SSCM Literature Implications

This study has contributed to knowledge by developing the SCM Framework to embed sustainability into the conjoint elements of network structure, management component and business processes (Figure 2.3). This study has explained how each of these elements functions together as a fully integrated and holistic model of SSCM (Section 4.3.3). This study extended the work of Douglas et al. (1998), Croxton et al. (2001) and Lambert (2008), and their SCM framework (Figure 2.2) into SSCM (Figure 2.3) empirically and developed theory. This was building on the work of Winter and Knemeyer (2013) who had examined the extant literature on SSCM using this framework. A prediction of the GSCF was that a successful organisation would be one that implemented all eight SCM processes and thus "*achieve the supply chain of the future*" (Lambert, 2008:320). What they failed to take into account was the impact of sustainability as a megatrend and the paradigm shift this would create within the business.

Sustainability Literature Implications

This thesis contributed to knowledge on the conceptualisation of sustainability by providing insights into how it is conceptualised (Section 5.2). It explained the differences between principles, dimensions, priorities (Section 5.5). The findings concurred with Johnston et al. (2007) that there is a lack of shared ethos in what this thesis defined as principles and why there is a need for this consideration and standards. Also, that these economically focused. However, because the emphasis of sustainability conceptualisation has been on dimensions these have become measurable and more focused (Section 5.2.1). It is more the principles that remain vague, yet implicit in the orthodox economic paradigm. Furthermore, this research has provided insight into the importance of understanding the relationship among the dimensions (Section 5.5), particularly their semantics as

recommended by Glavic and Luckman (2007) by describing the weaknesses and advantages in a dimensional focused conceptualisation of sustainability (Section 5.2.4). It also showed how the three-pillar definition is an ideal in conceptualisation and a misnomer in practice (Section 5.2.4).

Ahi & Searcy (2013) explained that, as a nascent field, inconsistent definitions are to be expected and encouraged, yet they also explain that as the discipline matures it is important to address these. This research has not only addressed the inconsistencies of various definitions (Section 5.2) but has also explained features of their effect – how principles determine practices (Section 5.4) and how power is leveraged to naturalise politically-motivated socio-economic concepts resulting in sedimentation (Section 5.2.4. *Ethical and Political Implications for Stakeholders in how Sustainability is Conceptualised*). By doing so, the study has also addressed Boons et al.'s (2012) call for careful consideration of the value positions behind actions. Therefore, it is hoped that future research will pay due regard to principles when defining sustainability and understanding the implications.

Power Literature Implications

A further contribution to knowledge was made in the power literature. This study has contributed to the work of Oliver (1991) and Rowley (1997) by explaining the role of focal companies in the network to influence principles, norms, rules, processes and practices. Critically, the study has highlighted the lacuna of research into power in interorganisational discourse (Section 5.4.4). A finding is that powerful focal companies are leveraging the network structure to drive their interpretation of sustainability principles - good or bad. This revealed that power in interorganisational discourse, particularly the network structure, is an isomorphic mechanism to institutionalise principles, practices and norms. One key aspect is that as the networks become denser due to the imperative and benefits of sustainable activity, homophilous clusters, such as trade and multi-stakeholder associations, are becoming increasingly important as an isomorphic mechanism. Findings revealed that this phenomenon will potentially have the effect of sedimenting politically motivated socio-economic principles that have not been sufficiently critiqued (Section 5.2.4). It also raises the political and ethical issue of what happens to weaker alternative paradigms of dependent organisations and actors. This study has shown that there are opposing groups existing in these interorganisational relationships. It raises the question

as to whether dependent partners' values get compromised or lost when conforming to the dominant paradigm.

Using Freeman's (2010) classification of stakeholder stake and power, the focal company can be described as the influencer who holds an extending political power of corporate political activity within its external network of relationships. However, as he explained, "*analysing stakeholders in terms of the organization's perceptions of their power and stake is not enough"* (2010:64). He argues a more rational analysis of who they are and how they can affect or are affected by the organisation can provide a more accurate account of the external environment. As Rowley explains, "*network models of the environment capture concept of the interorganisational field, which is a landscape of relationships with local actors relying on and/or impacting the organisation"* (2017:104). In this dynamic environment, the structure will change as a result of changing relationships. As organisations and their supply chains become more sustainable, links form, interconnectedness increases, and structures become denser over time (Sections 4.3 & 5.2.4 *Eco-centric Theory*). This results in centralised and regional clusters, with relative power and influence, as was observed in this study. This process is known as 'small-world networks' (Rowley, 2017). Hamprecht et al. (2005) recommended further research to investigate the role of what they refer to as 'horizontal alliances' in various industries, i.e. network clusters. The stakeholder network framework contributes to knowledge by expanding our understanding of boundaries beyond formal commercial partnerships and processes. It shows how the environment is dynamic and that there are power mechanisms relied upon, beyond capabilities and resources, to pursue own interest. This study examined the pattern of relationships among stakeholders and their positions relative to each other to influence principles. The research has contributed to knowledge by showing how organisations are positioning themselves centrally in the network and using clusters as a mechanism to manipulate and control principles that determine behaviour, interactions and performance (Sections 4.3.2, 5.2.4 & 5.4.4).

Powell (1990:315) lists many benefits of power, however, he does not consider the critical discourse dimension in institutionalising and strengthening political value systems, particularity hegemonic economic ones. There was no evidence of anyone who explores the power/political dimensions of institutionalising principles (Section 5.2.4). In the researcher's efforts to pursue this line of inquiry, Professor David Grant was contacted in

reference to his work on organisational discourse and CMS (Grant, 2004; Grant *et al.,* 2009). He was unaware of any research in this area but agreed there should be and recommended the works of Cynthia Hardy, Tom Lawrence and Steve Maguire.

Findings in this study concur with similar findings by Hardy and Thomas (2014) who found that power relations shape the constitution of strategy. In this instance, research showed how power relations shaped the constitution of sustainability principles and that these implications extended beyond the supply chain to institutional logics (Section 5.2.4).

Bertels and Lawrence (2016) work on conferring legitimacy and controlling critical resources as an organisational response to institutional complexity stemming from emerging logics provide insights for further exploration. In the SSCM domain, there are competing logics of sustainability across the supply chain that are challenging how sustainability is defined in principle (Section 5.2.1; Figure 5.2), from which a dominant logic of 'new capitalism' (Freeman, 2017) is emerging. This is due to the centralised position of powerful companies, with legitimacy as leaders in sustainability and the resources, to be the producers of the emerging political and economic system (Section 5.2.4). To extend this discourse, the researcher turned to the work of Maguire and his study of constructing organisational identity (Schultz *et al.,* 2012). The volume considers the mechanism of identity construction. In doing so, it considers the development of organisational identity from an institutional theory perspective. However, while the volume considers the shift down from organisational to individual identity, it does not consider the shift up from organisational to interorganisational networks and systems.

In examining power in SSCM, several issues became apparent in this study. Reimann and Ketchen (2017) claim that much of the discourse on power in SSCM has been through the lens of RDT. However, in the literature, (Search String 1) institutional theory was the most commonly used, followed by stakeholder theory, in both the discourses power and influence. Of the 78 articles reviewed, a common theme was the influence of focal companies, while fewer considered power implications (Testa & Iraldo, 2010; Azevedo *et al*., 2012; Kannan *et al.,* 2013; Zhu *et al.,* 2013; Marshall *et al*., 2015; Waller *et al.,* 2015; Ding *et al*., 2016; Formentini & Taticchi, 2016; Ameknassi *et al.,* 2016; Busse *et al*., 2017;). However, none considered how to manage processes from the perspective of SNT, even though all except Zhu et al. (2013), Kannan et al. (2013), Busse et al. (2017) and Testa & Iraldo (2010) took a network view of the supply chain configuration.

Stakeholder Network Theory Implications

This study has answered calls for further research on networks and SNT (Miemczyk *et al.,* 2012; Winter & Knemeyer, 2013; Reimann & Ketchen, 2017; Rowley, 2017). By using SNT to understand how supply chains are managed in practice, it has established that the orientation of the supply chain is determined by the interdependence of the stakeholders in the network, and the level of influence an organisation's principles has on another's (Table 5.11). As a result, there is a power asymmetry. This study empirically concurs with Reimann and Ketchen's (2017) hypothesis that power results from network position (Sections 4.3 & 4.4). This research also agrees that power dynamics affect the whole network. However, it does not conclude there. This study has demonstrated how power is leveraged to place organisations in a more central and influential position in the network (Sections 4.3 & 4.4). Power is also a means of value manipulation and appropriation of institutional logic in the sense of defining principles rather than its narrow economic sense of stakeholder value, added-value and value distribution. This action occurs at multiple levels – organisational, interorganisational network and systemically across business and wider society.

Another aspect of critique is the stakeholder tenet of the theory. Work by Freeman (2010) and those who extended his theoretical propositions of stakeholder theory by integrating it into network theory (Rowley, 1997; 2017) and institutional theory (Oliver, 1991), has produced many valuable insights into understanding how the stakeholder has power and resistance to this. This study has contributed to knowledge by showing how, under the paradigm shift of sustainability in SCM and business studies, there has been a change in assumptions about the stakeholder behavioural motivations. This study suggests the economic sociological argument that the assumption regards stakeholder resistance needs to be reconsidered in the context of sustainability as the organisation's value creation process has changed (Sections 5.2.1 &. 5.2.4). Eco-centric organisations are receptive to stakeholder's influences.

Collaboration vs Pre-Competitive Collaboration

Much of the SSCM literature is dominated by the key process of collaboration (Section 2.3.2 *Key Sustainability Business Processes* & Appendix VII – Table VII.5). Much of this work is influenced by the work of Spekman et al. (1998) who argued that relationships are no longer measured by purely a dyadic exchange and that value-adding activities can be

captured across the network of co-operating companies. Therefore, it is plausible to extend an organisation's conceptualisation of the partnership process. This has already been considered in SSCM discipline (Gunasekaran *et al.,* 2015; Touboulic *et al.,* 2014; Morali & Searcy, 2013). However, two key contributions of this research have revealed another dimension to this collaboration model. The conceptualisation of SSCM has evolved beyond supply chain collaboration to sectoral concurrence of companies (Section 5.2.2) collaborating pre-competitively (Section 5.3.6) across their supply chains. The process of pre-competitive collaboration enables concurrence at a network level to address the scale of sustainability issues resulting in systemic change. These contributions emerged through identifying key business processes and a SNT view of interdependencies in SSCM.

6.4.2. Practical Contributions

From a practical point of view, this section considers the issues which relate to managerial work at the strategic level and political level.

Strategic Level

Sustainability tenets dictate changes to the traditional elements of SCM and the managerial behaviours as a result of this (Section 2.4.1). The study explained how sustainability is defined by the organisation in terms of principles and dimensions (Section 4.4). It then explained the effect that principles have on the orientation and management of the supply chain (Section 5.2.3). This depends on the degree to which sustainability is embedded in the structure, culture and strategy of the organisation, i.e. organisational orientation. This is called eco-centricity (Section 5.2.4. *Eco-centric Theory*). It explains the degree to which an organisation is orientated towards sustainability, considers the needs of stakeholders and captures value in this process.

The business model identifies sources of sustainable and stakeholder value and interprets it in the plan of operations (Figure 5.2). The supply chain is an extension of the business model. This orientation results in a set of management methods that reflect the culture and attitude of the organisation (Table 4.3). These are captured in a set of practices that serve the organisational orientation - optimised they enhance it (Figure 5.6). Therefore, when a company wants to implement a strategic sustainability goal within its organisation and across the entire supply chain, there is a framework of principles and their corresponding practices that optimise how processes are managed (Table 5.1).

There is another dynamic that managers need to take into consideration and that is how the organisation is influenced by and influences stakeholders. These are important considerations because if an organisation is to engage in sustainability activity then there is an increased interdependence on stakeholders. One way to view this relationship is the dyadic exchange, another way is to understand how changing one relationship affects the network of interconnected relationships. The network view provides an understanding of interconnected stakeholders relationships and what appears as complex interdependencies. It provides a model for mapping the network and determining the nature of the relationship, such as direct or indirect, commercial or non-commercial, nature of the relationship and the type of organisation. From this, the strategy can be formulated, determining how to capture stakeholder value. At this point, the organisation needs to consider how it influences and is influenced by stakeholders in terms of the network structure and its position in it.

The conceptual framework provides an orientation model for understanding an organisation's position relative to stakeholders and how to implement their strategy based on network determinants (Figure 5.7). The network determinants explain how an organisation can orientate and manage the supply chain network based on these their orientation and position in the network. The framework is dynamic, so it allows the company to move strategically by optimising certain practices as a result of organisational, network and supply chain dimensions (Table 5.1). The conceptual framework also describes a range of practice archetypes (Figure 5.6; Table 5.12). Therefore, the framework can help the organisation understand potentially different behaviours and explain the principles upon which these are founded. This insight provides critical information on how to interact with stakeholders. Finally, the framework also explains the implications of how, by becoming more eco-centric, core values and behaviours will fundamentally change, moving the organisation into a new socio-economic paradigm.

Political Level

Be it competitive or collaborative, sustainability provides advantages. As discussed, the organisational orientation has internal and external impacts. The external environment can include multiple levels of social interaction, including the politics exercised across these. This includes the supply chain network, industrial networks, sectors, socio-economic systems and society as a whole. It is important for an organisation to consider the political

and ethical implications of its activities and the principles these are founded upon. This research focused on the global supply chain network. This view has provided insight into how companies leverage their network position to influence it, particularly downstream MNC. These focal companies have the capabilities, resources and position to access and influence institutional platforms. A company of this type can position itself within any of these networks to influence how sustainability is conceptualised. They interact with the relevant stakeholders to drive their own agenda, especially through heterophilous clusters.

6.4.3. Policy Contributions

Given the theoretical and practical implications, there are policy considerations. In this study, some important stakeholders were not included.

Government, a a key stakeholder, are important but it was not within the scope of this study to include due to resource limitations. Therefore, *Research Objective 4* was developed to consider the implications of this omission. Government plays an important role in creating an enabling environment with the provision of interventions such as regulation, subsidies, taxes, and training. However, there are different ethical belief systems as to what the respective roles of business and government are in our socio-economic system.

One contribution of this research is to understand that global organisations are grappling with diverse belief systems captured in heterophilous cultures and the implications of this (Section 5.2.4). It requires an understanding of global systems and geopolitical and macroeconomic issues. There are also heterophilous issues among developed and developing world countries regards their sustainability principles and standards and how they create an enabling environment.

A contribution to knowledge is the increasingly centralised role business associations are taking in businesses relationship with government (Section 5.2.4. *Hegemonic Social Discourse in Business Models*). These associations provide a corporate veil and critical mass that benefits businesses in leveraging power to influence government interventions. This is particularly relevant in the developing world where the standards and principles of western, globalised MNC are different to that of the developing nation and its local government it is operating in. For example, one trade association explained how they are working with origin governments to present industries interests. There is also the

consideration of the political level of influence MNC's have on intergovernmental platforms and initiatives, particularly in driving a conceptualisation of sustainability based on their heterophilous socio-economic perspective.

6.4.4. Methodological Contributions

The methodology has contributed to knowledge on several levels.

It has provided a metaprocess of data reduction to generate principles, processes, practices and the mechanisms that capture the patterns of relationships among them in SSCM. By using CDA, it developed the analysis and discourse on SSCM by providing an ethical and political backdrop to the implications of the findings. Thus, it extended the discourse in SSCM by its emancipatory nature.

SNA provided the framework to map a supply chain network and explain patterns and relationships among the nodes. Thus, addressing the call for network level research in SSCM and providing a methodology to do so (Miemczyk *et al.,* 2012; Winter & Knemeyer, 2013). SNA also highlighted is the array of ties, and their characteristics, that can be captured in the network model. Aiming to uncover socio-economic, political and ethical dimensions of SSCM, it explored the construction of discourses in social practice through CDA and SNA. Therefore, this research contributes to the methodology by applying CDA and SNA to SSCM discipline. Both individually and collectively they provided insights into power at work in organisations, supply chain networks and a broader systemic level.

Due to the epistemological and methodological bias within the discipline towards positivist research designs, this study has contributed by developing the constructionist paradigm and theory development in SSCM research. It has also shown how alternative philosophical paradigms are needed when paradigm shifts are occurring which displace the dominant order.

6.5. Research Limitations

It should be stressed that the study has been primarily concerned with relationship management in sustainable supply chain networks. This analysis has focused on the chocolate sustainable supply chain network in the F&B sector. The findings are limited to the constraints and context of the research approach, strategy and design. Therefore, it is

the duty of this study to be as critical of the research approach, strategy and design as it is of the thesis findings and contributions to knowledge. This is so that social science as a scientific discipline can be emancipated and improved by its critique (Alvesson *et al*., 2009).

Applying an alternative worldview may have profound effects on the research approach and outcomes. Therefore, "*such an elaboration is a statement of the assumptions brought to the research task*" (Crotty, 1998:7). However, constructionism is fairly tolerant of various research methods. This is because it articulates a theoretical perspective based on ontological relativism and epistemological subjectivism. Therefore, the research questions and objectives took into account the political and ethical implications of this normative study. Furthermore, the research design, particularly the data collection method and interview questions, purposely avoided value positions from the researcher to influence how sustainability *ought* to be conceptualised – instead, the research explained how and considered the implications of this from an ethical perspective. Also, the effort was made to provide alternatives, in its exposure of issues in how sustainability is conceptualised and the normative consequences, so that the study does more than critique, but rather enhance its political force. The purpose is not to argue superior alternatives, rather it is to emancipate through knowledge of alternatives and understand the constructs of each captured in the business model to make more politically-informed decisions.

The conceptual framework was developed through an intensive rather than extensive research method. Therefore, it may be tested through an extensive method such as multiple case studies, surveys, formal questionnaires, and statistical analysis. This would serve the purpose of developing the typology into a taxonomy and its generalisability to other populations.

The research strategy used a case study to develop theory. Therefore, the findings are restricted to a critical case as an explanatory-type study. The purpose was to reveal deep insights into a phenomenon to develop theory. As a case study method, explanatory questions were formed on how and why-type research questions. This thesis does not explain where, how many or by how much principles determine how processes are managed in practice. To do so would again require extensive research methods. The rationale for the critical case was constructed to examine the theoretical propositions. Therefore, it represents a "*significant contribution to knowledge and theory building by confirming, challenging and extending the theory*" (Yin, 2014:51).

The research setting was the F&B sector. The value of insights from this sector was described in Section 4.2.3. The sector provided the context to bound the study. However, this does not restrict its theoretical generalisation as context variability, such as a different commodity or sector supply chain, would be captured in how sustainability is defined, particularly its priorities and orientation. Political insights regard focal companies and power also produced another limitation. This conceptual framework is pertinent to those companies operating under the dominant orthodox system as captured in Figures 5.1 and 5.2). However, limitations appear in the relevancy for companies exemplifying alternative-type business models that requires further understanding (Sections 5.2.4. & 5.4.3).

Unfortunately, the nature of the data does not allow us to determine whether the findings are relevant to all stakeholders. In terms of participant stakeholder groups, three limitations concern traders, farmers and government. The lack of trader informants means that we cannot be certain that findings regard focal companies are applicable to all, only brand manufacturers and retailers. Furthermore, the limit of farmers participation means that, as dependent supply chain network members, their critical perspective is not fully represented. Their voice is mainly represented by NGO's who have their own political agenda and heterophilous values. Government could provide another level of discourse analysis. An interesting consideration could be the comparison of practices among private, public and social actor's organisation types. Another limitation is that the research did not consider the direct relationships, end-to-end in a complete commercial supply chain network. Greater insights into interdependencies and power asymmetry due to commercial-dependent relationships may produce other insights. Another limitation in application is that findings bear relevance to a strategic level and do not provide sufficient evidence to extend this to business functions at an operational level. Therefore, data and findings are limited to a broad supply chain network whose ties are through sustainability initiatives.

As a social science research project, its focus was sociological and political, providing insight into the development, structure and functioning of social relationships, particularly into political activity and behaviour, within the business profession (Yin, 2014). Therefore, any generalisations are purely within these domains.

6.6. Review of the Research Methodology

All theories, concepts and findings are grounded in the relativist ontology in that all knowledge of the social world is contextual and partial. In terms of the nature of social reality, socially constructed events, and an actor's interpretation of these provide windows into understanding the ideographic nature of patterns and relationships in social relations. How these are perceived by social actors in the observable or experienced causal phenomenon are described in narrative accounts. Furthermore, causality is power and therefore raised questions of ethics and politics regards the pathway through which events are actualised and an actor's perception of it.

Attitudes of Subjects

This reality cannot be understood independently of the subjects involved in the knowledge production process. Their insights are meaningful and therefore it was important to grasp the importance of their attitudes and the values that shape them. Yet, their evidence was neither morally or ethically neutral; it was political as it referred to "*activities concerned with the acquisition or exercise of authority [and power]*" (Morse, 2006:395). This did not constrict qualitative inquiry, rather it provided important insights into understanding power (Section 5.2.3, 5.2.4, 5.4.4 & 5.5.2). Evident from the research subjects (Sections 4.3, 4.2, 5.2, 5.4 & 5.5), having the power to define sustainability and determine the orientation of the supply chain, were politically motivated (Section 5.2.3). The participants' attitudes could be classified into two distinct groups:

- *Group 1. Type of organisation (commercial and non-commercial)* - The commercially-motivated informants were guarded and reticent to participate in an in-depth study beyond an interview. It was common not to get access to other employees. Three assumptions could be made from this: either that the company was aligned with an academic institution; they did not want their company closely scrutinised for fear of critique; and/or sustainability is a competitive advantage and they did not want to give this away by sharing their knowledge. In comparison, the non-commercial informants were more critical and candid about the values and actions of commercial actors. A common attitude was for NGO actors to be treated as critical friends either in partnership or as stakeholders by commercial organisations. Trade association informants provided valuable insights into their

political characteristic of how sustainability is defined within an economic context pre-competitively. Therefore, including a variety of non-commercial informants improved the quality of the research through member checking and triangulation.

- *Group 2. Sustainability orientation (ego-/eco-centric)* – An in-depth critique has been provided on attitudes within this group (Sections 4.3.2, 4.4, 5.2.1, 5.4 & 5.2.4; Table 5.12).

A final point on attitude. It could not be ascertained in this study whether the actors were aware of the politics of the performative knowledge process and of their function as producers. Rather, there seemed to be an attitude of '*doing the right thing*' with regards to their own motivations. However, they were more reflective and critical of network members' motivations and the effectiveness of their behaviours. There is a danger here of slipping into the trap of presumption that all sustainability activity is inherently good.

Method on Data Collection

The method of data collection specifically required multiple data sources to triangulate meanings. Regards primary data collection, this process was well-designed yet flexible. For example, direct observation of natural social settings was desirable yet not realistic due to the global locations of participants. Skype video proved invaluable as it allowed a rapport to be built face-to-face. This was more important than observation of natural social settings as it encouraged their trust and candour. Using a semi-structured interview guide ensured that the relevant research questions were addressed. It also allowed the researcher to pursue a line of enquiry and question interviewees about their interpretations (Yin, 2014). During the data collection phase, keeping notes, transcribing interviews and discussing issues with supervisors was helpful. For example, reflection on initial interviews developed the researcher's skills in active listening and open questions which improved the quality of the data and time it was collected in. However, upon reflection, it would have helped the efficiency of data analysis to have a structured questionnaire within the business process section of the interview guide. This could have been shared with the informants in advance and responses taken in writing, therefore, allowing more time within the interview to focus on meaning, which was the essential aspect of interviews as a source of evidence (Yin, 2014). Instead, it placed the burden of analysis on NVivo and axil coding.

Another aspect of data collection arose in using websites as documentary evidence. This is because the content changed frequently. In hindsight, taking screen-shots of web pages

would have helped in making inferences on sustainability discourse. It also demonstrated how emergent our understanding of sustainability is, with web pages the frontline of how meaning is constructed, and its intertextuality and constitution.

Problems Resulting from Research Design

The study did not adhere to the timeline and had to be adapted to fit external circumstances. The original sequencing of activities was adjusted from January to September 2016 to a new timeframe of January 2016 to April 2017, due to issues with the first commercial participant organisation. Originally, this company had agreed to three case studies being carried out on different commodity supply chains – wheat, cocoa and palm oil. However, by November 2016, two months after the presumed completion of data collection phase this was not forthcoming. This issue, along with insights from external experts, led to a revised case study design logic. The rationale for the selection criteria changed from multiple case design of three cases for maximum variation to single case design with two embedded units of analysis. The classification for the unit of analysis was changed from the supply chain and individuals working in respective business functions to the network and its commercial companies. This had an immediate and beneficial impact on access to interviewees as people were willing to commit 1-2 hours of their time for an interview. It did not provide insights into myopic operational perspectives of business functions – rather it was more strategic, providing insights from the perspective of sustainability directors and organisational orientation.

6.7. Proposals for Further Research

Areas for further investigation include:

- Indigenous versus nonindigenous business models. This could consider the role and voice of indigenous people and their business models, to develop the discourse on alternative business models and consider their value against nonindigenous ones, particularly with regards to sustainability and alternative economic theories themes. It would appear relevant to develop insights in this direction given the issues of conceptual domination and sedimentation, power asymmetry and dependence, interorganisational relationships and clustering, and socio-economic-political discourses. This could also develop the discourse on contesting Fayol's

principle as a fallacy. It would appear that the plurality of business models that represent a plurality of principles could extend our knowledge about business models as isomorphic mechanisms.

- Stakeholder theory has been critiqued and extended by combining it with other complementary research. Another research area may consider the theoretical implications of sustainability and stakeholder receptivity on stakeholder theory, and, by extension, SNT. It is the recommendation of this study that it is combined with eco-centric theory to explore its conceptual propositions, especially in light of the 'receptive vs resistance' finding of this study.
- The theoretical implications on SNT due to the density findings. The ramifications are two-fold:
    - It would appear that further research into how sustainability changes our theoretical understanding of SNT, particularly given findings in high centrality/density networks that seem to challenge the work of Rowley (1997) and Vurro et al. (2009).
    - Further research into what Roome (2001) described as 'social and industrial experiments' appears necessary given findings of powerful clusters using density to influence the network. Further focus could be given to their role as bureaucratic networks. This would seem to suggest that research into clusters using the proxies of centrality and density to influence the network requires further examination.
    - Interorganisational clusters regard institutionalising political socio-economically motivated principles, potentially benefitting Powell's (1990) rationales for interorganisational relationships. SNA might usefully focus in particular on small world networks, while more extensive research methods could provide insights into how other sectors institutionalise principles. While the consideration of non-mediated power mechanism might deliver new insights into isomorphic mechanisms due to the paradigmatic shift occurring within business studies due to sustainability tenets.
    - Eco-centric theory: Within this study, findings have indicated it provides important insights into understanding sustainability in organisation and

management studies. However, much work is yet to be done to build and test the theory to develop it.

Due to the limitations of this research, without further research into other sectors, it will not be possible to generalise the theory and conceptual framework developed in this study to other populations. Another avenue to develop generalisability would be extending this model to business functions and a study bounded by a continuous supply chain.

Finally, it is important to investigate further power. In consideration of the rich history of political science and an analysis of power, the author agrees with Freeman (2010) that there is a scarcity of scholarship of corporate political activity. The findings of this thesis clearly indicate the necessity for future policy to consider the implications of such activity.

6.8. Concluding Comments

The purpose of this research project was to understand how to manage supply chains sustainably. This was based on phenomenon of multiple sustainability rationales being conceptualised and integrated into businesses to develop supply chains sustainably. The research showed how variations in sustainability principles resulted in a range of styles of practice based on a spectrum of sustainability orientation from ego- to eco-centric. Organisations need to understand their sustainability orientation and that of the supply chain network stakeholders in order to orientate and manage the supply chain effectively to create sustainability and stakeholder integration and value.

This research was interested in the effect of this phenomenon given the strategic implications of sustainability across the supply chain. As such, concepts of power were applied through SNT to understand the political and practical implications of how sustainability is conceptualised. Power is a possession that can be leveraged by organisations and groups to legitimise principles and practices among interorganisational relationships. Power also resides in the system as an isomorphic mechanism. The more centralised an organisation in the network the greater its ability gain legitimacy, create referent power through clusters and institutions, and set agendas.

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APPENDICES

Appendix I: Recent megatrends and the emergence of sustainability

As SCM has matured, and reached greater levels of efficiency and performance, its scope has expanded. As such, the past two decades have witnessed megatrends in globalisation and sustainability. Megatrend was a term coined by John Naisbitt (1982) and his discourse on societal and economic paradigmatic shifts. Naisbitt considered the societal and economic uncertainty that transforming our lives, while his contemporary Drucker (1998) considered the impact of this resulting in organisational transition and restructuring. While Naisbitt did not consider sustainability a megatrend at that time, he did capture critical attributes of it including a move from hierarchy to horizontal and social relationships, an expansion of economic horizons from the national to worldview, i.e. globalisation, and from short terms to long-term outlook. With these changes has come greater exposure to world markets and emerging mega-trends such as macroeconomic, geopolitical, planetary boundaries and human rights & well-being, i.e. sustainability issues. These forces are changing how business gets done, putting the current economic system under pressure. This, in return, is expanding SCM to consider the integration of sustainability into business and management models, shaping a new set of practices and processes (Storey et al., 2006). For example, the food and beverage sector (F&B) provides ample evidence of these issues and activities.

Globalisation

At the turn of the century, SCM scholars and practitioners were realising the potential of global supply chain network orientation and optimisation, creating a new evolutionary stage in the field (Mentzer *et al*., 2001). Globalisation manifests in the trans-regional integration of operations and logistics through markets. Increasing globalisation, in terms of sourcing, operations and markets, was presenting new avenues for research such as adapting SCM to regional variations (Mentzer *et al*., 2001), developing new management practices that adapt to new business opportunities (Storey *et al*., 2006), and the expansion of corporate social responsibility and governance to responsibly manage relationships (Maloni & Brown, 2006) and with it critical and ethical questions of power. For example, Banerjee, Carter and Clegg also attribute to it a global dominance of Western, particularly American, 'capitalist relations of production' model characterised by "*North American values, products, force, and debt, and unsustainable modes of production and consumption*" (2009:188).

Geopolitical and Macro-Economic Trends

Globally, companies are concerned about access to commodities and raw materials, market conditions, and macroeconomic and geopolitical trends that exert increasing pressure, volatility and risks. Of those relating to politics influenced by geographical factors, the European Strategy and Policy Analysis System (2015) surmises these as:

- A richer an older human race characterised by an expanding global middle class and greater inequalities
- A more vulnerable process of globalisation led by an 'economic G3'
- A transformative industrial and technological revolution
- A growing nexus of climate change, energy and competition for resources
- Changing power, interdependence and multilateralism

These dynamics are creating uncertainty and complexity with rising risks and instability, such as the rise of nationalism and religious extremism, or political tensions, civil conflict and terrorism. They are also creating a global shift in demographics and wealth redistribution. Ultimately, this is changing dominant business paradigms of corporate culture and power from the Western (America and Europe) model to Asian, African and South American emerging economies. The rise of Asia, particularly China, in global dominance toppling Europe and the United States, and the emergence of Africa and Latin America, are driving new actors with different values into a multi-polar world and causing a geopolitical revolution. These factors influence how the aggregate economies behave globally, ultimately reshaping it. For example, the emerging middle class creates greater demands in consumerism and a shift in consumption patterns. Inequality increases the rich/poor divide indicative of the 1 billion living on less than $1.25 a day (World Bank measure) and the consolidation of power by multinational (MNC) manufacturing companies and retailers across global economies; while this power-base is shifting away from Western dominance. Another shift includes a redistribution of wealth to the emerging economies, where estimates indicate Asia's share of the global economy over 50% and its middle class increasing from 400 million to over 1 billion by 2030 (Christopher, 2011)

In the short-term, global economic growth is moderate and uneven, especially in light of the 'unexpected shocks' of heightened geopolitical conflicts (DESA, 2015). These issues are causing "*persistent macroeconomic uncertainties and volatility; low commodity prices and declining trade flows; rising volatility in exchange rates and capital flows; stagnant*

investment and diminishing productivity growth; and a continued disconnect between finance and real sector activities" that are affecting business sustainability (DESA, 2016:vii). The challenge stated by Christopher is "*for those businesses seeking to cater for the growing demand in these 'frontier' markets to create appropriate supply chain solutions… because many of these developing markets lack appropriate infrastructure and institutions, radically different and innovative SCMs are required*" (2011):285). This is indicative of the new business practices predicted by Storey et al. (2006).

The Great Accelerator of Anthropocene Trends.

Human activity has impacted on the planetary system as a geological force arguably since the late 1800s, the advent of the industrial era and retrieved data from ice cores indicated of greenhouse gases. This is what Crutzen referred to as the Anthropocene era of "*human-dominated, geological epoch*" of catastrophic proportions (2002:23) Grear (2015) argues the problem is that humanity has had an anthropocentric view whereby we objectify all other life systems. There are various opinions as to when the period originated resulting from scientific signatures of human activity (Lewis, 1997; Crutzen, 2002; Balter, 2013; Lewis & Maslin, 2015) but what cannot be disputed is the 'great acceleration' of socio-economic and earth system trends that have been taking place since the 1950s (Exhibit 1) (Reynolds *et al*., 2015). The Intergovernmental Panel on Climate Change (IPCC, 2015) reported that scientists were more than 95% certain that global warming is being caused mostly by increasing concentrations of greenhouse gases and other anthropogenic activities (Exhibit 1). These emissions have caused the Earth's surface temperature to rise, and the oceans absorb about 80 % of this additional heat. IPCC project four scenarios based on population size, economic activity, lifestyle, energy use, land use patterns, technology and climate change to forecast projected changes to the climate system. As such, IPCC is highly confident that global surface temperature is likely to succeed 1.5^{o}C by 2100 for 3 of the 4 scenarios. This will result extreme climate condition and new risks for natural and human systems that are unevenly distributed and more intense for disadvantaged and vulnerable people globally.

As a result of system imbalances and market failure due to Anthropocene, geo-political and macro-economic trends the planet and people are suffering. More than two and a half billion people on our planet subsist below the international poverty line of US$1.90 a day (Euromonitor International, 2017a). According to the World Health Organization (WHO), in

2000 more than twice as many people died from suicide as died in wars (WHO, 2002), while in 2016 there were 4.6 million infant deaths (Euromonitor International, 2017a). In 2005, the World Bank reported that the wealthiest 20% of the world accounted for 76.6% of total private consumption, while the poorest fifth just 1.5% (Ogbuka, 2012). An estimated 1.3 billion tonnes worth approximately $1 trillion is wasted, incommensurate with 1 billion currently undernourished, another 1 billion hungry, and the estimated three planets of natural resources required to feed the 9.6 billion population by 2050. Less than 3% of the world's water is fresh (UNDP, 2017a), 9.1% of the population does not have access to clean drinking water (Euromonitor International, 2017a), and the 43.3% expected water crisis in the next 10 years (WEF, 2017). As such responsible consumption and production is required alongside holistic and comprehensive global goals are required to "*end poverty, protect the planet and ensure prosperity for all*" (UNDP, 2017b).

Sustainable Development Goals

The sustainable development goals (SDGs) were agreed upon by more than 150 world leaders at the United Nations Sustainable Development Summit on 25th September 2015. They came into effect in January 2016, building upon the previous 8-millennium development goals (MDGs) adopted in 2000. The 17 goals and 169 targets set the 2030 Agenda for Sustainable Development and are being implemented in 193 UN member countries and territories by the United Nations Development Programme (UNDP). The SDGs build in the MDGs by tackling the more complex root causes of poverty and environmental vulnerability in a holistic, comprehensive and transformative approach. Rather than focusing on 'halfway' goals in the developing world as the MDGs did, the SDGs seek universal prosperity and statistical 'zero' on its targets. Furthermore, they require more shared responsibility and inclusive participation, rather than the previous technocratic, top-down process. They also move beyond crisis into more visionary targets of peace, stability, human rights and good governance. As such they are better equipped to handle current and emergent challenges.

The SDGs are pertinent to business as there are good reasons as to why they should engage and how they are aligning with the goals (Euromonitor International, 2017a). The benefits of committing to sustainability are clear and present a good business case, including gaining consumer loyalty, stronger investor confidence, market opportunities, operational cost-savings and a more stable operating environment. This is evidenced by

companies aligning their strategies with the SDGs. However, Euromonitor (2017a) reports that more needs to be done beyond companies focusing on goals and targets only convenient for themselves, rather, corporate alignment needs to be holistic and systemic. In this new era, businesses have even greater opportunity to work collectively with peers, politicians and policy-makers to drive sustainability practices.

Appendix II: Management component structural and relational links in SSCM

Management Component	Link	SCM Definition by Lambert (2003)	Conceptualisation in SSCM	Authors
Structural Constructs	**Planning**	"*Planning is the anticipation of likely occurrences in the supply chain and preparing potential responses to achieve them [including] objectives, strategies, policies and detailed plans to achieve them; which establishes an organisation to implement decisions; and includes a detailed review of performance and feedback to introduce a new planning cycle*." (2003:236)	Planning, taking a holistic, long-term TBL perspective, consider the sustainable supply chain as an integrated extension of core business orientation and strategy. The degree to which this is done, and the responses taken, brings with it a new set of potential issues and complexity, yet does so for competitive advantage and to help achieve their sustainability agenda.	Kleindorfer et al. (2005) Vachon & Klassen (2006b) Linton et al. (2007) Carter & Rogers (2008) Seuring & Müller (2008a) Pagell & Wu (2011) Ahi & Searcy (2013) Beske & Seuring (2014)
	Control Methods	"*Control is achieved by developing and implementing the best metrics… [particularly] profit & loss statements [as they] provide the best measure of SCM performance and can be used to align performance across processes and between firms*" (2003:238)	Control methods is a supporting factor in SSCM in that it provides the systems and tools by which to integrate sustainability dimensions with existing metrics to gain positive results and create a common understanding of standards and SCO to control performance related practices.	Kleindorfer et al. (2005) Vachon & Klassen (2006b) Carter & Rogers (2008) Seuring & Müller (2008a) Pagell & Wu (2011) Ahi & Searcy (2013) Beske & Seuring (2014)
	Workflow Structure	"*Workflow structure determines how and where the work within the supply chain is executed. The goal of managing workflow structure is to streamline the supply chain so that total costs are minimised. In order to do that, it is necessary to identify the specific locations in the supply chain where work should be completed*." (2003:239)	SSCM is resource-intensive, the scale and complexity of issues broad, with limited information and differing stakeholder views. Therefore, strategically understanding where and how to have impact is critical for competitive advantage. This includes identifying the issues, stakeholders, flows and links using stakeholder evaluation schemes, impact assessments and scientific data to coordinate flows.	Kleindorfer et al. (2005) Vachon & Klassen (2006b) Linton et al. (2007) Carter & Rogers (2008) Seuring & Müller (2008a) Pagell & Wu (2011) Sarkis (2012) Ahi & Searcy (2013) Beske & Seuring (2014)
	Organisational Structure	"*Implementation of the GSCF SCM processes does not mean that processes will replace functions… this expertise resides in functions… the planning and coordinating are done in the processes while the execution is done in the*	In order to plan and integrate sustainability across the supply chain, it must be strategically coordinated among business functions and cross-functional relationships and teams. This helps build understanding, communication, commitment and dynamic capabilities	Kleindorfer et al. (2005) Carter & Rogers (2008) Pagell & Wu (2011) Sarkis (2012) Beske & Seuring (2014)

	functions… Cross-functional teams provide a firm with the ability to quickly respond to issues." (2003:241)		
Knowledge Management	"*Knowledge management refers to the acquisition, storage, and distribution of information and expertise that is required for operating the company. It also involves managing access to that knowledge and expertise within the firm and across firms in the supply chain.*" (2003:242)	Due to the scale and complexity of issues that the added element of sustainability brings, how an organisation manages knowledge requires greater boundary-spanning activities and learning to become more collaborative, holistic, systemic and innovative for competitive advantage.	Kleindorfer et al. (2005) Vachon & Klassen (2006b) Carter & Rogers (2008) Cheng et al. (2008) Pagell & Wu (2011) Sarkis (2012) Ahi & Searcy (2013) Beske & Seuring (2014)
Communication Structure	"*Communication structure describes the flow of information that is necessary to link two organisations and ensure that the right people talk to each other*." (2003:242)	In increasingly complex, globalised supply chains that cross boundaries, regions and cultures, effective communication flow can be aided technology, technical standards, operating principles, scientific data and multilingual experts to support the flow of information, knowledge sharing, organisational learning, collaboration and supply chain transformation.	Kleindorfer et al. (2005) Vachon & Klassen (2006b) Carter & Rogers (2008) Cheng et al. (2008) Seuring & Müller (2008a) Pagell & Wu (2011) Sarkis (2012) Ahi & Searcy (2013) Beske & Seuring (2014)
Resource Fitness*		This is the ability to morally and legally allocate and share environmental, human, financial and information resources holistically and systemically across the whole supply chain. This includes managing scarce resources and resource investment for the environment, innovation, cost control and competitive advantage.	Kleindorfer et al. (2005) Vachon & Klassen (2006b) Carter & Rogers (2008) Cheng et al. (2008) Seuring & Müller (2008a) Pagell & Wu (2011) Sarkis (2012) Beske & Seuring (2014)
Transparency & Traceability*		Transparency is reflective of the greater level of stakeholder management in SSCM and includes reporting and getting feedback from stakeholders to determine design, supplier selection and performance. Traceability tracks every component to evaluate whether standards are acceptable.	Vachon & Klassen (2006b) Carter & Rogers (2008) Pagell & Wu (2011) Beske & Seuring (2014)
Organisational Orientation*		As sustainability increasingly becomes a competitive advantage and integrated into an organisation's core business	Kleindorfer et al. (2005) Vachon & Klassen (2006b)

			structure, strategy and culture, the degree to which sustainability is ethically and legally embedded are determined by the organisational orientation. This includes the degree to which the TBL is integrated into the core business structure, strategy and culture of the focal firm.	Seuring & Müller (2008a) Pagell & Wu (2011) Sarkis (2012) Ahi & Searcy (2013) Beske & Seuring (2014)
	Resilience*		Explicit in the definition of SSCM is the management of supply chains for resilience of the organisation. This is the capacity of the organisation and supply chain to withstand and recover from sustainability impacts.	Ahi & Searcy (2013) Beske & Seuring (2014)
	Continuous Improvement*		The performance monitoring, evaluation and improvement cycle of processes and management components related to sustainability that present new opportunities for enhanced communication, learning, innovation and practices.	Kleindorfer et al. (2005) Vachon & Klassen (2006b) Linton et al. (2007) Seuring & Müller (2008a) Sarkis (2012) Beske & Seuring (2014)
	Holistic Coordination*		For successful sustainable supply chain integration, organisation's need to consider the entire SCO end-to-end and the coordinated, systemic, holistic impacts, costs and benefits of decisions and activities that extend beyond traditional members and stakeholders.	Kleindorfer et al. (2005) Vachon & Klassen (2006b) Linton et al. (2007) Seuring & Müller (2008a) Pagell & Wu (2011) Ahi & Searcy (2013) Beske & Seuring (2014)
Relational Constructs	**Management Methods**	The methods used by managers to "*get things done through people*" efficiently and effectively including compensation, reward and promoting behaviour. (2003:243)	The integration of sustainability in SCM necessitates the full understanding of and commitment to all three dimensions of sustainability and appreciation that stakeholders will have different perspectives. Once a manager has the support of top-management, is enabled by the organisational orientation and has a full understanding then they can adopt new practices that operationalise strategic intent and integrate sustainability into the thinking, decision-making and behaviours of their workforce.	Vachon & Klassen (2006b) Linton et al. (2007) Carter & Rogers (2008) Pagell & Wu (2011) Sarkis (2012) Beske & Seuring (2014)
	Power	The five sources of power for leadership include reward, coercion, legitimacy, reference and expert (French & Raven). There are varying levels of power within an	Organisations exert their power to initiate and influence sustainability practices and SCO for competitive advantage. However, due to increased collaboration, power asymmetry and inherent costs as a result of sustainability impacts, power	Vachon & Klassen (2006b) Carter & Rogers (2008) Cheng et al. (2008) Seuring & Müller (2008a)

	organisation and among firms in the supply chain. "*Management can use its power in ways that only benefit the firm or in ways that benefit the entire supply chain*." (2003:244-245)	needs to be managed carefully, especially for those who hold the power (traditionally downstream with focal companies)., especially in a cultural boundary context so that they can encourage collaboration.	Sarkis (2012) Beske & Seuring (2014)
Leadership	"*A manager at any level of the organisation must be an effective leader. SCM connects companies and requires individuals from these companies to work together. Individuals may differ with respect to their understanding of leadership due to their organisation's philosophy and approach to leadership*." (2003:244)	Due to increased integration of TBL in core business (and its competitive advantage), longer strategic partnerships and that other leaders are driving their own strategic sustainability agenda, top management needs to actively ensure their organisational orientation is considered in SCO and decision-making across the supply chain.	Pagell & Wu (2011) Sarkis (2012) Beske & Seuring (2014)
Risk	"*Risks [and rewards] may not be equitably shared across the supply chain or within a company." Powerful focal companies may put "pressure on suppliers or customers to absorb more of the risk*" (2003:245)	With sustainability, impacts come added risk, and one of the objectives of an organisation is to avoid these, rather than passing them onto others in the traditional SCM model. This conventional approach is becoming increasingly unpopular due to increased transparency, stakeholder scrutiny and accountability. New practices include implementing standards, increase cooperation, long-term relationships, transparency, enhanced communication, information sharing, risk mitigation initiatives. and supplier assessment as risk reduction mechanisms.	Vachon & Klassen (2006b) Carter & Rogers (2008) Seuring & Müller (2008a) Pagell & Wu (2011) Sarkis (2012) Beske & Seuring (2014)
Reward	As above re. power, however, "*if the other firm cannot make sufficient profit, the relationship will not last.*"	There has been a shift in mindset with SSCM from competitive to collaborative advantage. Therefore, organisations are reappraising embedding sustainability as there are sufficient mutually beneficial rewards such as reducing risk and costs, new market entry due to innovation, profits and competitive advantage. However, these benefits are more likely realised over the long-term and therefore, decision-making needs to consider the short and long-term trade-offs and what partners to select and how to create buy-in.	Vachon & Klassen (2006b) Carter & Rogers (2008) Pagell & Wu (2011) Sarkis (2012) Beske & Seuring (2014)
Culture	"*Culture is the pattern of basic assumptions that an organisation has invented, discovered,*	The degree to which sustainability ethically and legally is embodied in the organisational culture - and by extension organisational orientation, planning, management methods	Kleindorfer et al. (2005) Carter & Rogers (2008) Pagell & Wu (2011)

	or developed, and that has worked well enough to be considered valid." (2003:246)	and attitudes, can be seen by the principles, policies, standards, behaviours and decisions that organisation makes.	Sarkis (2012) Beske & Seuring (2014)
Attitude	"*Corporate culture is taught to new members of the firm as the correct way to perceive, think, and feel. The values and norms held by top management determine the culture of an organisation.*" (2003:246)	Engaging in sustainability is changing the values, norms and practices of managers as they interpret organisational culture and orientation, and make decisions, build links with stakeholders and guides all values, goals and controls by which they operate to translate specific needs and values and find a mutually beneficial collaborative advantage.	Vachon & Klassen (2006b) Carter & Rogers (2008) Pagell & Wu (2011) Sarkis (2012) Beske & Seuring (2014)
Trust	"*Trust is based on the belief that the individual in each company will act in a way that is mutually beneficial. Four factors influencing trust include satisfaction, credibility/status, conflict mitigation, effective communication.*" (2003:246)	A higher level of trust is associated with and is an enabler of higher collaboration and SSCM, creating more embedded ties, communication and knowledge exchange.	Kleindorfer et al. (2005) Vachon & Klassen (2006b) Carter & Rogers (2008) Cheng et al. (2008) Sarkis (2012) Beske & Seuring (2014)
Commitment	"*Commitment is the level of effort that management invests in a relationship… The higher the level of trust between the managers of two firms, the greater the commitment to the relationship… The goal is to create a balanced relationship in which both sides are dependent on each other*." (2003:246)	The degree of collaboration can be appraised by the differing levels of commitment between partners. The level of commitment is determined by the organisational orientation – and by extension planning, resource fitness, control methods, leadership, management methods, culture and attitude, that enables the transformation of the supply chain to become sustainable.	Kleindorfer et al. (2005) Vachon & Klassen (2006b) Carter & Rogers (2008) Pagell & Wu (2011) Sarkis (2012) Beske & Seuring (2014)
Mutual Cooperation*		This is the degree to which the focal company considers the needs, costs and goals of their stakeholders and works together for a common goal. SSCM considers the differing needs of stakeholders as there is an increased need for coordination and alignment.	Kleindorfer et al. (2005) Vachon & Klassen (2006b) Linton et al. (2007) Carter & Rogers (2008) Cheng et al. (2008) Seuring & Müller (2008a) Pagell & Wu (2011) Sarkis (2012) Ahi & Searcy (2013) Beske & Seuring (2014)
Shared Values*		Part of the alignment process, shared values is indicative of sustainable SCO. This is the extent to which partners have common values about what behaviours, goals, and policies	Kleindorfer et al. (2005) Cheng et al. (2008) Pagell & Wu (2011)

	are important and the common rules they establish to induce these values for mutually beneficial relationships sharing risks and profit.	Ahi & Searcy (2013) Beske & Seuring (2014)
Vision*	Visionary organisations that have core values and cultures and a sense of purpose beyond the economic bottom line outperform their competitors and are industry leaders in sustainability.	Carter & Rogers (2008)
Innovative*	Sustainable innovation can lead to an improved process, products, profits and first-mover advantage while changing management methods and practices that require greater levels of communication, knowledge exchange, resource fitness and vision for a fostering, collaborative environment.	Kleindorfer et al. (2005) Vachon & Klassen (2006b) Sarkis (2012) Beske & Seuring (2014)
Long-term focus*	There is a shift in how relationships are managed, benefits are considered, decisions are made, and outcomes are delivered from the short-term to long-term. Sustainability requires a shift from short-term to long-term focus and decision-making.	Kleindorfer et al. (2005) Vachon & Klassen (2006b) Sarkis (2012) Ahi & Searcy (2013) Beske & Seuring (2014)

** denotes new links unique to SSCM*

Appendix III: Summary of key SSCM practices in the literature

Definition	*Focus of article*	*Criteria*	*Authors*
"*Practices related to environmental issues and performance encompass both internal and external activities, whether related to preventing pollution before it is generated, recycling waste and spent products, extracting resources and raw materials, or capturing harmful pollutants followed by proper disposal."* (2006:797)	Product stewardship - green practices across the supply chain	• Environmental monitoring • Environmental collaboration	Vachon & Klassen (2006)
"We take a broad perspective of GSCM and include internal and external practices that play a role in greening the supply chain." (2004:267)	Green management practices	• Internal environmental management • Green purchasing* • Customer collaboration including environmental requirements* • Investment recovery • Eco-design	Zhu & Sarkis (2004) Zhu et al. (2005)*

"*SSCM has emerged as a result of marrying the three pillars of sustainability with core business practices, such as procurement, logistics, management, marketing, and operations*" (2012:637)	Measuring supplier performance	• Governance
		• Policy
		• Standards
		• Integration of
		  - CSR practices
		  - Sustainability principles
		  - Performance measures
		• Performance measurement
		• Monitoring
		• Reporting
		• Collaboration
		• Strategy
		• Looking forward on SSCM
			Morali & Searcy (2012)

"*Practices [as] basic routines… [Also,] that e.g. enhance relationships between the partners, the flow of goods and information or issues of sustainability…"* (2014:132)	Dynamic capabilities	SSCM practices • Orientation • Continuity • Collaboration • Risk management • Pro-activity SSCM dynamic capabilities • SC re-conceptualisation • Knowledge management • SC partner development • Reflexive SC control • Co-evolving	Beske et al. (2014:132)

Appendix IV: Relevant literature on F&B supply chain management

Author(s)	*Paper's abstract*	*SSCM focus*	*Perspective*	*Organisation or Industry*
Auroi (2003)	This paper explores how fair trade principles can be considered as important elements in the discussion about the more sustainable management of value chains.	Principles	Focal companies – traders and manufacturers	Coffee
Hamprecht et al. (2005)	This study proposes a method for integrating controls of social and environmental performance in a supply chain controlling framework for continuous improvement.	Management component	Focal company - manufacturer	Nestlé
Maloni & Brown (2006)	This paper provides a detailed framework of unique CSR applications in the food supply chain, serving as a comprehensive tool to support the assessment of strategic and operational supply chain CSR practices.	Principles, Management component, Practices	Entire supply chain network	US food supply chain
van der Vorst et al. (2009)	This paper proposes a new integrated approach towards logistics, sustainability and food quality analysis, and implement the approach by introducing a new simulation environment, ALADINTM.	Network structure, Management methods, Processes	Entire supply chain network	Pineapple supply chain from Ghana
Akkerman et al. (2010)	This paper focuses on the distribution network design and decision-making processes.	Network structure Management Component	Focal companies – manufacturers and retailers	Food
Pullman & Dillard (2010)	The purpose of this paper is to describe an emergent supply chain management system that supports a sustainable values-based organization using a structuration theory-based framework.	Management component Practices	Farmers organisations	US beef cooperative
Wolfert et al. (2010)	This paper provides an overall method for analysis, design and implementation of information integration, taking technical as well as organizational development into account.	Network structure, Management component, Processes	Agri-network	Farming
Alvarez et al. (2010)	The purpose of this paper is to report on supply chain network evolution and dynamics of governance in a multi-stakeholder supply chain sustainability initiative led by Nespresso and provide a framework to study the creation and evolution of governance mechanisms.	Network structure, Management component, Practices	Focal company - manufacturer	Coffee
Awaysheh & Klassen (2010)	To explore the integration of social issues in the management of supply chains from an operations management perspective.	Network structure, Practices	Focal company - manufacturer	Food, chemicals & transportation
Mena et al. (2011)	This study intensifies the main root causes and good practices of food waste in the supplier-retailer interface.	Determinants Practices	Focal companies – manufacturers and retailers	Food waste in UK & Spain

Wognum et al. (2011)	This paper explores the current status of information systems to support sustainability in food supply chains and communication towards essential stakeholders – focusing on technical & organisational solutions & developments concerning sustainability and transparency.	Management component	Dutch industry	Dutch F&B
Vlajic et al. (2012)	This paper presents an integrated framework of logistic KPIs to support analysis and design of robust food supply chains to improve resilience.	Network structure, Management component	Focal company - processor	Dutch meat
Yakovleva et al. (2012)	This study builds a multi-stage procedure to help analytically evaluate supply chains' sustainability performance.	Management component, Processes	Focal companies – manufacturers and retailers	Food sector
Bastian & Zentes (2013)	This paper discusses the antecedences and consequences of supply chain transparency in sustainable agrarian supply chain management, stating transparency is a prerequisite or a basic indicator of good management in SSCM.	Management component, Practices	Focal companies – manufacturers and retailers	EU food sector
Fischer (2013)	The purpose of this paper is to assess and explain the trust situation in EU agri-food supply chains in the context of the assumption that the existence of well-functioning trust-based supplier-buyer relationships enables a secure and safe food supply.	Management component, Practices	Upstream supply chain (farmers-processors) Downstream supply chain (processors-retailers)	EU meat & cereal
Kaipia et al. (2013)	This paper studies information sharing in fresh food supply chains, with a specific goal of reducing waste and facilitating sustainable performance.	Management component, Processes, Practices	Entire supply chain	Fresh food in Nordic countries
Gold et al. (2013)	This study shows how that applying SSCM to Base of the Pyramid projects can complement economic, social, and environmental dimensions of sustainability. In particular, the projects analysed show viable paths for MNCs integrating the social domain of sustainability with general SSCM theory and practice and improve sustainability performance.	Management component Practices	Focal company - manufacturer	Food sector
Accorsi et al. (2014)	This paper proposes an original conceptual framework for the integrated design of a food packaging and distribution network.	Network structure	Packaging & distribution	Italian fruit & veg industry
Beske et al. (2014b)	This paper aims at describing how SSCM practices allow companies to maintain control over their supply chain and achieve a competitive advantage with the implementation of dynamic capabilities.	Management component, Practices	Literature	Food sector
Bourlakis et al. (2014)	This paper analyses sustainable performance differences and measures and provides numerous statistical comparisons of its key members (growers, manufacturers, wholesalers and retailers) with respect to firm size.	Management component	Entire supply chain	Greek food

Del Borghi et al. (2014)	This paper presents technical and managerial solutions, primarily packaging, to environmental hotspots on the whole supply chain identified through LCA	Management component,	Entire supply chain	Italian tomato industry
Grekova et al. (2014)	This paper addresses the effects of external institutional pressures (regulative, normative, and culturally-cognitive) and the level of in-company environmental management (I-EM) on externally-orientated environmental management (E-EM), which involves information exchange in the chain, cooperation with suppliers and customers.	Management component, Practices	Processors	Dutch F&B industry
Glover et al. (2014)	This paper, applying Institutional Theory, explores the role of supermarkets in the development of legitimate sustainable practices across the dairy supply chains.	Practices	Commercial stakeholders	UK dairy supply chain
Grimm et al. (2014)	This study seeks to explore and increase understanding of critical factors that help to overcome the complexities and unique challenges of sub-supplier management.	Management component Practices	Focal firms – buyer's dyads (manufacturer and processor)	Chocolate/sugar and fruit/juice
Govindan et al. (2014a)	This paper proposes a multi-objective optimization model by integrating sustainability in decision-making, on distribution in a perishable food supply chain network (SCN).	Network structure, Management component	Supply network	Distribution of perishable food
Li & Wang (2014)	The purpose of this special issue "Sustainable Food Supply Chain Management" is to reflect recent developments, key issues and challenges, and to examine research issues concerned with analysis and decision support at strategic, operational and technical levels.	General	Research	Food sector
Touboulic et al. (2014)	This paper looks at multiple triadic relationships involving a large buyer and its small suppliers to investigate how relative power affects the implementation of sustainable supply-management practices.	Practices	Focal company - manufacturer	UK food sector
Darkow et al. (2015)	The study shows how managers perceive and cope with the emerging domain of environmentally oriented sustainability, how they translate it into strategy and utilize resources for creating customer value.	Management component	Food service logistics provider	Food supply chain

Appendix V: Tables of search strings filters

Table 0.1: Key Word Search Strings

TOPIC	SEARCH STRING 1 - FEATURES	SEARCH STRING 2 - THEMES	CONJOINED LISTS
	sustainab* or "triple bottom line" or green or ethic*	sustainab* or "triple bottom line" or green or ethic*	
AND	"Supply chain" OR "Value Chain"	"Supply chain" OR "Value Chain"	
AND	process* or mechanism* or concept* or practice* or integrat*	governance or strategy* or plan* or design* or performance or evaluat* or monitor* or collaborat* or integrat*	
RESULTS *(filter process 2)*			
BSP	64	135	158
WOS	69	157	180
AGGREGATE	78	174	201
PAPERS IN COMMON			
Between databases:	55	118	158
Between search strings:			51

CODE: BSP=BUSINESS SOURCE PREMIER DATABASES; WOS=WEB OF SCIENCE DATABASE

Table V.2: SLR Filter Process of Articles Referencing Key Process Features

Search String 1 - Features			
Search process using truncated search terms, English and academic journals since 1987			
BSP: 2,155		WoS: 2,692	
Filter process 1: Check overall relevance using title - papers			
BSP: 138		WoS: 132	
Filter process 2: Quality (ABIS or not), relevance (check abstracts), duplicates, or not available online-papers			
BSP: 64		WoS: 69	
Filter process 3: Contains definitions &/or measures - papers			
BSP: 56		WoS: 59	
Filter process 4a: Definitions - papers		***Filter process 4b: Measures - papers***	
BSP: 22	WoS: 24	BSP: 42	WoS: 46

CODE: BSP=BUSINESS SOURCE PREMIER DATABASES; WOS=WEB OF SCIENCE DATABASE

Table V.3: SLR Filter Process of Articles Referencing Key Process Themes

Search String 2 - Themes											
Search process using truncated search terms, English and academic journals since 1987											
BSP: 2,364						WoS: 4,512					
Filter process 1: Check overall relevance using title - papers											
BSP: 210						WoS: 241					
Filter process 2: Quality (ABIS or not), relevance (check abstracts), duplicates, or not available online-papers											
BSP: 135						WoS: 160					
Filter process 3: Contains process theme in title											
BSP: 112						WoS: 133					
Filter process 4: Frequency of process themes in title											
BSP:						WoS:					
G	**S**	**D**	**I**	**C**	**P**	**G**	**S**	**D**	**I**	**C**	**P**
12	18	25	19	14	75	17	23	33	21	14	94

Codes: BSP=BUSINESS SOURCE PREMIER DATABASES; WOS=WEB OF SCIENCE DATABASE; G=Governance; S=Strategic planning; D=Design; I=Integration; C=Collaboration; P=Performance monitoring & evaluation

Appendix VI: List of SLR articles.

Reference no.	*Reference*	*Search sting 1 – features*	*Search sting 2 - themes*
(1)	Adhitya, A., Halim, I. and Srinivasan, R. (2011) 'Decision Support for Green Supply Chain Operations by Integrating Dynamic Simulation and LCA Indicators: Diaper Case Study.' *Environmental Science & Technology*, 45(23) pp. 10178–10185.	x	x
(2)	Agi, M. A. N. and Nishant, R. (2017) 'Understanding influential factors on implementing green supply chain management practices: An interpretive structural modelling analysis.' *Journal of Environmental Management*, 188, Mar, pp. 351-363.	x	
(3)	Ahmad, W., Rezaei, J., Sadaghiani, S. and Tavasszy, L. A. (2017) 'Evaluation of the external forces affecting the sustainability of oil and gas supply chain using Best Worst Method.' *Journal of Cleaner Production*, 153(1), Jun, pp. 242-252.		x
(4)	Ala-Harja, H. and Helo, P. (2015) 'Reprint of "Green supply chain decisions – Case-based performance analysis from the food industry".' *Transportation Research: Part E*, 74 pp. 11-21.		x
(5)	Al-e-Hashem, S., Baboli, A. and Sazvar, Z. (2013) 'A stochastic aggregate production planning model in a green supply chain: Considering flexible lead times, nonlinear purchase and shortage cost functions.' *European Journal of Operational Research*, 230(1), Oct, pp. 26-41.		x
(6)	Alvarez, G., Pilbeam, C. and Wilding, R. (2010) 'Nestlé Nespresso AAA sustainable quality program: an investigation into the governance dynamics in a multi-stakeholder supply chain network.' *Supply Chain Management-an International Journal*, 15(2) pp. 165-182.		x
(7)	Ameknassi, L., Ait-Kadi, D. and Rezg, N. (2016) 'Integration of logistics outsourcing decisions in a green supply chain design: A stochastic multi-objective multi-period multi-product programming model.' *International Journal of Production Economics*, 182, Dec, pp. 165-184.	x	x
(8)	Arnette, A. N., Brewer, B. L. and Choal, T. (2014) 'Design for sustainability (DFS): the intersection of supply chain and environment.' *Journal of Cleaner Production*, 83 pp. 374-390.		x
(9)	Azadi, M., Shabani, A., Khodakarami, M. and Farzipoor Saen, R. (2015) 'Reprint of "Planning in feasible region by two-stage target-setting DEA methods: An application in green supply chain management of public transportation service providers".' *Transportation Research: Part E*, 74 pp. 22-36.		x
(10)	Azadi, M., Jafarian, M., Saen, R. F. and Mirhedayatian, S. M. (2015) 'A new fuzzy DEA model for evaluation of efficiency and effectiveness of suppliers in sustainable supply chain management context.' *Computers & Operations Research*, 54, Feb, pp. 274-285.		x
(11)	Azevedo, S. G., Carvalho, H., Duarte, S. and Cruz-Machado, V. (2012) 'Influence of Green and Lean Upstream Supply Chain Management Practices on Business Sustainability.' *Ieee Transactions on Engineering Management*, 59(4), Nov, pp. 753-765.	x	
(12)	Azevedo, S. G., Carvalho, H. and Machado, V. C. (2011) 'The influence of green practices on supply chain performance: A case study approach.' *Transportation Research Part E-Logistics and Transportation Review*, 47(6), Nov, pp. 850-871.	x	x
(13)	Babazadeh, R., Razmi, J., Pishvaee, M. S. and Rabbani, M. (2017) 'A sustainable second-generation biodiesel supply chain network design problem under risk.' *Omega-International Journal of Management Science*, 66, Jan, pp. 258-277.		x

(14)	Bai, C. G., Sarkis, J., Wei, X. P. and Koh, L. (2012) 'Evaluating ecological sustainable performance measures for supply chain management.' *Supply Chain Management-an International Journal*, 17(1) pp. 78-92.		x
(15)	Beske, P., Land, A. and Seuring, S. (2014) 'Sustainable supply chain management practices and dynamic capabilities in the food industry: A critical analysis of the literature.' *International Journal of Production Economics*, 152, Jun, pp. 131-143.	x	
(16)	Beske-Janssen, P., Johnson, M. P. and Schaltegger, S. (2015) '20 years of performance measurement in sustainable supply chain management - what has been achieved?' *Supply Chain Management-an International Journal*, 20(6) pp. 664-680.		x
(17)	Bhattacharya, A., Mohapatra, P., Kumar, V., Dey, P. K., Brady, M., Tiwari, M. K. and Nudurupati, S. S. (2014) 'Green supply chain performance measurement using fuzzy ANP-based balanced scorecard: a collaborative decision-making approach.' *Production Planning & Control*, 25(8) pp. 698-714.		x
(18)	Bhattacharya, A., Dey, P. K. and Ho, W. (2015) 'Green manufacturing supply chain design and operations decision support.' *International Journal of Production Research*, 53(21), Nov, pp. 6339-6343.		x
(19)	Blome, C., Paulraj, A. and Schuetz, K. (2014) 'Supply chain collaboration and sustainability: a profile deviation analysis.' *International Journal of Operations & Production Management*, 34(5) pp. 639-663.		x
(20)	Bostrom, M., Jonsson, A. M., Lockie, S., Mol, A. P. J. and Oosterveer, P. (2015) 'Sustainable and responsible supply chain governance: challenges and opportunities.' *Journal of Cleaner Production*, 107, Nov, pp. 1-7.		x
(21)	Boukherroub, T., Ruiz, A., Guinet, A. and Fondrevelle, J. (2015) 'An integrated approach for sustainable supply chain planning.' *Computers & Operations Research*, 54, Feb, pp. 180-194.	x	x
(22)	Bourlakis, M., Maglaras, G., Gallear, D. and Fotopoulos, C. (2014) 'Examining sustainability performance in the supply chain: The case of the Greek dairy sector.' *Industrial Marketing Management*, 43(1), Jan, pp. 56-66.		x
(23)	Brandenburg, M. and Rebs, T. (2015) 'Sustainable supply chain management: a modeling perspective.' *Annals of Operations Research*, 229(1), Jun, pp. 213-252.	x	
(24)	Busse, C., Meinlschmidt, J. and Foerstl, K. (2017) 'Managing Information Processing Needs in Global Supply Chains: A Prerequisite to Sustainable Supply Chain Management.' *Journal of Supply Chain Management*, 53(1), Jan, pp. 87-113.	x	
(25)	Buyukozkan, G. and Berkol, C. (2011) 'Designing a sustainable supply chain using an integrated analytic network process and goal programming approach in quality function deployment.' *Expert Systems with Applications*, 38(11), Oct, pp. 13731-13748.	x	x
(26)	Chan, R. Y. K., He, H. W., Chan, H. K. and Wang, W. Y. C. (2012) 'Environmental orientation and corporate performance: The mediation mechanism of green supply chain management and moderating effect of competitive intensity.' *Industrial Marketing Management*, 41(4), May, pp. 621-630.	x	x
(27)	Chardine-Baumann, E. and Botta-Genoulaz, V. (2014) 'A framework for sustainable performance assessment of supply chain management practices.' *Computers & Industrial Engineering*, 76, Oct, pp. 138-147.	x	x
(28)	Chavez, R., Yu, W. T., Feng, M. Y. and Wiengarten, F. (2016) 'The Effect of Customer-Centric Green Supply Chain Management on Operational Performance and Customer Satisfaction.' *Business Strategy and the Environment*, 25(3), Mar, pp. 205-220.		x
(29)	Chen, Y. J. and Sheu, J. B. (2009) 'Environmental-regulation pricing strategies for green supply chain management.' *Transportation*		X

	Research Part E-Logistics and Transportation Review, 45(5), Sep, pp. 667-677.		
(30)	Chiarini, A. (2014) 'Strategies for Developing an Environmentally Sustainable Supply Chain: Differences Between Manufacturing and Service Sectors.' *Business Strategy and the Environment*, 23(7), Nov, pp. 493-504.		X
(31)	Chiu, J. Z. and Hsieh, C. C. (2016) 'The Impact of Restaurants' Green Supply Chain Practices on Firm Performance.' *Sustainability*, 8(1), Jan, pp. 1-14.		X
(32)	Chung, C. J. and Wee, H. M. (2008) 'Green-component life-cycle value on design and reverse manufacturing in semi-closed supply chain.' *International Journal of Production Economics*, 113(2), Jun, pp. 528-545.		X
(33)	Clarke, T. and Boersma, M. (2017) 'The Governance of Global Value Chains: Unresolved Human Rights, Environmental and Ethical Dilemmas in the Apple Supply Chain.' *Journal of Business Ethics*, 143(1) pp. 111-131.		X
(34)	Coskun, S., Ozgur, L., Polat, O. and Gungor, A. (2016) 'A model proposal for green supply chain network design based on consumer segmentation.' *Journal of Cleaner Production*, 110, Jan, pp. 149-157.		X
(35)	Curkovic, S. and Sroufe, R. (2010) 'Using ISO 14001 to promote a sustainable supply chain strategy.' *Business Strategy and the Environment*, 20(2) p. 71.		X
(36)	de Brito, M. P., Carbone, V. and Blanquart, C. M. (2008) 'Towards a sustainable fashion retail supply chain in Europe: Organisation and performance.' *International Journal of Production Economics*, 114(2), Aug, pp. 534-553.		X
(37)	De Giovanni, P. and Vinzi, V. E. (2012) 'Covariance versus component-based estimations of performance in green supply chain management.' *International Journal of Production Economics*, 135(2), Feb, pp. 907-916.		X
(38)	Del Borghi, A., Gallo, M., Strazza, C. and Del Borghi, M. (2014) 'An evaluation of environmental sustainability in the food industry through Life Cycle Assessment: the case study of tomato products supply chain.' *Journal of Cleaner Production*, 78, Sep, pp. 121-130.		x
(39)	Devika, K., Jafarian, A. and Nourbakhsh, V. (2014) 'Designing a sustainable closed-loop supply chain network based on triple bottom line approach: A comparison of metaheuristics hybridization techniques.' *European Journal of Operational Research*, 235(3), Jun 16, pp. 594-615.		x
(40)	Ding, H., Zhao, Q., An, Z. and Tang, O. (2016) 'Collaborative mechanism of a sustainable supply chain with environmental constraints and carbon caps.' *International Journal of Production Economics*, 181 pp. 191-207.	x	X
(41)	Ding, H. P., Zhao, Q. L., An, Z. R., Xu, J. and Liu, Q. (2015) 'Pricing strategy of environmental sustainable supply chain with internalizing externalities.' *International Journal of Production Economics*, 170, Dec, pp. 563-575.		X
(42)	Ding, H. P., Liu, Q. and Zheng, L. (2016) 'Assessing the economic performance of an environmental sustainable supply chain in reducing environmental externalities.' *European Journal of Operational Research*, 255(2), Dec, pp. 463-480.		X
(43)	Drake, M. J. and Schlachter, J. T. (2008) 'A Virtue-Ethics Analysis of Supply Chain Collaboration.' *Journal of Business Ethics*, 82(4), Nov, pp. 851-864.	x	X
(44)	Dubey, R., Gunasekaran, A. and Ali, S. S. (2015b) 'Exploring the relationship between leadership, operational practices, institutional pressures and environmental performance: A framework for green supply chain.' *International Journal of Production Economics*, 160, Feb, pp. 120-132.	x	X

(45)	Dues, C. M., Tan, K. H. and Lim, M. (2013) 'Green as the new Lean: how to use Lean practices as a catalyst to greening your supply chain.' *Journal of Cleaner Production*, 40, Feb, pp. 93-100.	x	X
(46)	Elhedhli, S. and Merrick, R. (2012) 'Green supply chain network design to reduce carbon emissions.' *Transportation Research Part D-Transport and Environment*, 17(5), Jul, pp. 370-379.		X
(47)	Erol, I., Sencer, S. and Sari, R. (2011) 'A new fuzzy multi-criteria framework for measuring sustainability performance of a supply chain.' *Ecological Economics*, 70(6), Apr, pp. 1088-1100.		X
(48)	Esfahbodi, A., Zhang, Y. F., Watson, G. and Zhang, T. (2017) 'Governance pressures and performance outcomes of sustainable supply chain management - An empirical analysis of UK manufacturing industry.' *Journal of Cleaner Production*, 155, Jul, pp. 66-78.		x
(49)	Esfahbodi, A., Zhang, Y. F. and Watson, G. (2016) 'Sustainable supply chain management in emerging economies: Trade-offs between environmental and cost performance.' *International Journal of Production Economics*, 181, Nov, pp. 350-366.		X
(50)	Fahimnia, B., Sarkis, J. and Eshragh, A. (2015) 'A tradeoff model for green supply chain planning: A leanness-versus-greenness analysis.' *Omega-International Journal of Management Science*, 54, Jul, pp. 173-190.		X
(51)	Formentini, M. and Taticchi, P. (2016) 'Corporate sustainability approaches and governance mechanisms in sustainable supply chain management.' *Journal of Cleaner Production*, 112, Jan, pp. 1920-1933.	X	X
(52)	Geng, R. Q., Mansouri, A. and Aktas, E. (2017) 'The relationship between green supply chain management and performance: A meta-analysis of empirical evidences in Asian emerging economies.' *International Journal of Production Economics*, 183, Jan, pp. 245-258.		X
(53)	Glover, J. L., Champion, D., Daniels, K. J. and Dainty, A. J. D. (2014) 'An Institutional Theory perspective on sustainable practices across the dairy supply chain.' *International Journal of Production Economics*, 152 pp. 102-111.	X	
(54)	Golicic, S. L. and Smith, C. D. (2013) 'A Meta-Analysis of Environmentally Sustainable Supply Chain Management Practices and Firm Performance.' *Journal of Supply Chain Management*, 49(2) pp. 78-95.	X	X
(55)	Golpira, H., Najafi, E., Zandieh, M. and Sadi-Nezhad, S. (2017) 'Robust bi-level optimization for green opportunistic supply chain network design problem against uncertainty and environmental.' *Computers & Industrial Engineering*, 107, May, pp. 301-312.		X
(56)	Gosling, J., Jia, F., Gong, Y. and Brown, S. 'The role of supply chain leadership in the learning of sustainable practice: Toward an integrated framework.' *Journal of Cleaner Production*, 140(0), Oct, pp. 239-250.	X	X
(57)	Govindan, K., Jafarian, A. and Nourbakhsh, V. (2015a) 'Bi-objective integrating sustainable order allocation and sustainable supply chain network strategic design with stochastic demand using a novel robust hybrid multi-objective metaheuristic.' *Computers & Operations Research*, 62, 10//, pp. 112-130.	X	X
(58)	Govindan, K., Khodaverdi, R. and Vafadarnikjoo, A. (2015b) 'Intuitionistic fuzzy based DEMATEL method for developing green practices and performances in a green supply chain.' *Expert Systems with Applications*, 42(20), Nov, pp. 7207-7220.	X	X
(59)	Govindan, K., Seuring, S., Zhu, Q. H. and Azevedo, S. G. (2016) 'Accelerating the transition towards sustainability dynamics into supply chain relationship management and governance structures.' *Journal of Cleaner Production*, 112, Jan, pp. 1813-1823.		X
(60)	Govindan, K. (2013) 'Embedding sustainability dynamics in supply chain relationship management and governance structures.' *Journal of Cleaner Production*, 59, 11/15/, pp. 1-2.		X

(61)	Green, K. W., Jr., Zelbst, P. J., Meacham, J. and Bhadauria, V. S. (2012) 'Green supply chain management practices: impact on performance.' *Supply Chain Management-an International Journal*, 17(3), 2012, pp. 290-305.	X	X
(62)	Gunasekaran, A., Subramanian, N. and Rahman, S. (2015) 'Green supply chain collaboration and incentives: Current trends and future directions.' *Transportation Research: Part E*, 74 pp. 1-10.		X
(63)	Haghighi, S. M., Torabi, S. A. and Ghasemi, R. (2016) 'An integrated approach for performance evaluation in sustainable supply chain networks (with a case study).' *Journal of Cleaner Production*, 137, Nov, pp. 579-597.	X	X
(64)	Handfield, R. B., Walton, S. V., Seegers, L. K. and Melnyk, S. A. (1997) ''Green' value chain practices in the furniture industry.' *Journal of Operations Management*, 15(4) pp. 293-315.	X	
(65)	Hoejmose, S. U., Grosvold, J. and Millington, A. (2014) 'The effect of institutional pressure on cooperative and coercive 'green' supply chain practices.' *Journal of Purchasing and Supply Management*, 20(4), 12//, pp. 215-224.	X	
(66)	Hsu, C. C., Tan, K. C. and Zailani, S. H. M. (2016) 'Strategic orientations, sustainable supply chain initiatives, and reverse logistics Empirical evidence from an emerging market.' *International Journal of Operations & Production Management*, 36(1) pp. 86-110.		X
(67)	Hsueh, C. F. (2015) 'A bilevel programming model for corporate social responsibility collaboration in sustainable supply chain management.' *Transportation Research Part E-Logistics and Transportation Review*, 73, Jan, pp. 84-95.		X
(68)	Hu, M. C., Chen, Y. H. and Huang, L. C. (2014) 'A sustainable vegetable supply chain using plant factories in Taiwanese markets: A Nash-Cournot model.' *International Journal of Production Economics*, 152, Jun, pp. 49-56.		X
(69)	Irani, Z., Kamal, M. M., Sharif, A. and Love, P. E. D. (2017) 'Enabling sustainable energy futures: factors influencing green supply chain collaboration.' *Production Planning & Control*, 28(6-8) pp. 684-705.		X
(70)	Jabbour, A. B. L. d. S., Jabbour, C. J. C., Latan, H., Teixeira, A. A. and de Oliveira, J. H. C. (2015) 'Reprint of "Quality management, environmental management maturity, green supply chain practices and green performance of Brazilian companies with ISO 14001 certification: Direct and indirect effects".' *Transportation Research: Part E*, 74 pp. 139-151.	x	x
(71)	Jakhar, S. K. (2015) 'Performance evaluation and a flow allocation decision model for a sustainable supply chain of an apparel industry.' *Journal of Cleaner Production*, 87, Jan, pp. 391-413.		X
(72)	Ji, P., Ma, X. and Li, G. (2015) 'Developing green purchasing relationships for the manufacturing industry: An evolutionary game theory perspective.' *International Journal of Production Economics*, 166 pp. 155-162.		X
(73)	Jin, S. H., Jeong, S. J. and Kim, K. S. (2017) 'A Linkage Model of Supply Chain Operation and Financial Performance for Economic Sustainability of Firm.' *Sustainability*, 9(1), Jan, pp. 1-23.		X
(74)	Kadzinski, M., Tervonen, T., Tomczyk, M. K. and Dekker, R. (2017) 'Evaluation of multi-objective optimization approaches for solving green supply chain design problems.' *Omega-International Journal of Management Science*, 68, Apr, pp. 168-184.		x
(75)	Kannan, D., Khodaverdi, R., Olfat, L., Jafarian, A. and Diabat, A. (2013) 'Integrated fuzzy multi criteria decision making method and multi-objective programming approach for supplier selection and order allocation in a green supply chain.' *Journal of Cleaner Production*, 47, May, pp. 355-367.	x	X

(76)	Kim, J. and Rhee, J. (2012) 'An empirical study on the impact of critical success factors on the balanced scorecard performance in Korean green supply chain management enterprises.' *International Journal of Production Research*, 50(9), 2012, pp. 2465-2483.		X
(77)	Kretschmer, A., Spinler, S. and Van Wassenhove, L. N. (2014) 'A School Feeding Supply Chain Framework: Critical Factors for Sustainable Program Design.' *Production and Operations Management*, 23(6), Jun, pp. 990-1001.		X
(78)	Kuei, C. H., Madu, C. N., Chow, W. S. and Chen, Y. (2015) 'Determinants and associated performance improvement of green supply chain management in China.' *Journal of Cleaner Production*, 95, May, pp. 163-173.		X
(79)	Kusi-Sarpong, S., Bai, C. G., Sarkis, J. and Wang, X. P. (2015) 'Green supply chain practices evaluation in the mining industry using a joint rough sets and fuzzy TOPSIS methodology.' *Resources Policy*, 46, Dec, pp. 86-100.	x	
(80)	Kusi-Sarpong, S., Sarkis, J. and Wang, X. P. (2016) 'Assessing green supply chain practices in the Ghanaian mining industry: A framework and evaluation.' *International Journal of Production Economics*, 181, Nov, pp. 325-341.	x	X
(81)	Laari, S., Toyli, J. and Ojala, L. (2017) 'Supply chain perspective on competitive strategies and green supply chain management strategies.' *Journal of Cleaner Production*, 141, Jan, pp. 1303-1315.		X
(82)	Laari, S., Toyli, J., Solakivi, T. and Ojala, L. (2016) 'Firm performance and customer-driven green supply chain management.' *Journal of Cleaner Production*, 112, Jan, pp. 1960-1970.		X
(83)	Lam, J. S. L. (2015) 'Designing a sustainable maritime supply chain: A hybrid QFD-ANP approach.' *Transportation Research Part E-Logistics and Transportation Review*, 78, Jun, pp. 70-81.		x
(84)	Laosirihongthong, T., Adebanjo, D. and Tan, K. C. (2013) 'Green supply chain management practices and performance.' *Industrial Management & Data Systems*, 113(8) pp. 1088-1109.	x	X
(85)	Le, T. N. and Wang, C. N. (2017) 'The Integrated Approach for Sustainable Performance Evaluation in Value Chain of Vietnam Textile and Apparel Industry.' *Sustainability*, 9(3), Mar, pp. 1-21.		X
(86)	Lee, S. M., Kim, S. T. and Choi, D. (2012) 'Green supply chain management and organizational performance.' *Industrial Management & Data Systems*, 112(8-9) pp. 1148-1180.		X
(87)	Lee, S. Y. (2015) 'The effects of green supply chain management on the supplier's performance through social capital accumulation.' *Supply Chain Management-an International Journal*, 20(1) pp. 42-55.		X
(88)	Li, Q. Y. and Shen, B. (2016) 'Sustainable Design Operations in the Supply Chain: Non-Profit Manufacturer vs. For-Profit Manufacturer.' *Sustainability*, 8(7), Jul, pp. 1-19.		X
(89)	Lin, R. J. (2013) 'Using fuzzy DEMATEL to evaluate the green supply chain management practices.' *Journal of Cleaner Production*, 40, Feb, pp. 32-39.	x	X
(90)	Liu, C. C., Yu, Y. H., Wernick, I. K. and Chang, C. Y. (2015) 'Using the Electronic Industry Code of Conduct to Evaluate Green Supply Chain Management: An Empirical Study of Taiwan's Computer Industry.' *Sustainability*, 7(3), Mar, pp. 2787-2803.		X
(91)	Liu, P. and Yi, S. P. (2016) 'New Algorithm for Evaluating the Green Supply Chain Performance in an Uncertain Environment.' *Sustainability*, 8(10), Oct, pp. 1-21.		x
(92)	Liu, S. F., Kasturiratne, D. and Moizer, J. (2012) 'A hub-and-spoke model for multi-dimensional integration of green marketing and sustainable supply chain management.' *Industrial Marketing Management*, 41(4), May, pp. 581-588.	X	x

(93)	Liu, X., Yang, J., Qu, S., Wang, L., Shishime, T. and Bao, C. (2012) 'Sustainable Production: Practices and Determinant Factors of Green Supply Chain Management of Chinese Companies.' *Business Strategy and the Environment*, 21(1), Jan, pp. 1-16.	x	
(94)	Luo, J., Chong, A. Y.-L., Ngai, E. W. T. and Liu, M. J. (2015) 'Reprint of "Green Supply Chain Collaboration implementation in China: The mediating role of guanxi".' *Transportation Research: Part E*, 74 pp. 37-49.		X
(95)	Luthra, S., Mangla, S. K., Xu, L. and Diabat, A. (2016) 'Using AHP to evaluate barriers in adopting sustainable consumption and production initiatives in a supply chain.' *International Journal of Production Economics*, 181, Nov, pp. 342-349.		X
(96)	Luzzini, D., Brandon-Jones, E., Brandon-Jones, A. and Spina, G. (2015) 'From sustainability commitment to performance: The role of intra- and inter-firm collaborative capabilities in the upstream supply chain.' *International Journal of Production Economics*, 165, Jul, pp. 51-63.		X
(97)	Madani, S. R. and Rasti-Barzoki, M. (2017) 'Sustainable supply chain management with pricing, greening and governmental tariffs determining strategies: A game-theoretic approach.' *Computers & Industrial Engineering*, 105, Mar, pp. 287-298.		X
(98)	Mallidis, I., Dekker, R. and Vlachos, D. (2012) 'The impact of greening on supply chain design and cost: a case for a developing region.' *Journal of Transport Geography*, 22, May, pp. 118-128.		X
(99)	Mari, S. I., Lee, Y. H. and Memon, M. S. (2016) 'Sustainable and Resilient Garment Supply Chain Network Design with Fuzzy Multi-Objectives under Uncertainty.' *Sustainability*, 8(10), Oct, pp. 1-22.		X
(100)	Mari, S. I., Lee, Y. H. and Memon, M. S. (2014) 'Sustainable and Resilient Supply Chain Network Design under Disruption Risks.' *Sustainability*, 6(10), Oct, pp. 6666-6686.		X
(101)	Marshall, D., McCarthy, L., McGrath, P. and Claudy, M. (2015) 'Going above and beyond: how sustainability culture and entrepreneurial orientation drive social sustainability supply chain practice adoption.' *Supply Chain Management-an International Journal*, 20(4) pp. 434-454.	X	
(102)	Mathivathanan, D., Govindan, K. and Haq, A. N. (2017) 'Exploring the impact of dynamic capabilities on sustainable supply chain firm's performance using Grey-Analytical Hierarchy Process.' *Journal of Cleaner Production*, 147, Mar, pp. 637-653.	X	X
(103)	Mathiyazhagan, K., Diabat, A., Al-Refaie, A. and Xu, L. (2015) 'Application of analytical hierarchy process to evaluate pressures to implement green supply chain management.' *Journal of Cleaner Production*, 107, Nov, pp. 229-236.		X
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(177)	Xie, G. (2015) 'Modeling decision processes of a green supply chain with regulation on energy saving level.' *Computers & Operations Research*, 54, Feb, pp. 266-273.	X	
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(182)	Zahiri, B., Zhuang, J. and Mohammadi, M. (2017) 'Toward an integrated sustainable-resilient supply chain: A pharmaceutical case study.' *Transportation Research: Part E*, 103 pp. 109-142.		X
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(193)	Zhu, Q., Sarkis, J. and Lai, K.-H. (2008) 'Confirmation of a measurement model for green supply chain management practices implementation.' *International Journal of Production Economics*, 111(2), Feb, pp. 261-273.	X	
(194)	Zhu, Q., Sarkis, J. and Lai, K.-h. (2007) 'Green supply chain management: pressures, practices and performance within the Chinese automobile industry.' *Journal of Cleaner Production*, 15(11-12), 2007, pp. 1041-1052.	X	X
(195)	Zhu, Q. H., Sarkis, J. and Geng, Y. (2005) 'Green supply chain management in China: Pressures, practices and performance.' *International Journal of Operations & Production Management*, 25(5-6), 2005, pp. 449-468.	X	X
(196)	Zhu, Q., Sarkis, J. and Lai, K.-h. (2013) 'Institutional-based antecedents and performance outcomes of internal and external green supply chain management practices.' *Journal of Purchasing & Supply Management*, 19(2) pp. 106-117.	X	X
(197)	Zhu, Q. H. and Sarkis, J. (2004) 'Relationships between operational practices and performance among early adopters of green supply chain management practices in Chinese manufacturing enterprises.' *Journal of Operations Management*, 22(3), Jun, pp. 265-289.	X	X
(198)	Zhu, Q. and Sarkis, J. (2007) 'The moderating effects of institutional pressures on emergent green supply chain practices and performance.' *International Journal of Production Research*, 45(18-19) pp. 4333-4355.	X	X
(199)	Zhu, Q. H. and Sarkis, J. (2006) 'An inter-sectoral comparison of green supply chain management in China: Drivers and practices.' *Journal of Cleaner Production*, 14(5), 2006, pp. 472-486.	X	
(200)	Zhu, Q., Geng, Y., Sarkis, J. and Lai, K.-h. (2011) 'Evaluating green supply chain management among Chinese manufacturers from the ecological modernization perspective.' *Transportation Research Part E-Logistics and Transportation Review*, 47(6), Nov, pp. 808-821.		X
(201)	Zohal, M. and Soleimani, H. (2016) 'Developing an ant colony approach for green closed-loop supply chain network design: a case study in gold industry.' *Journal of Cleaner Production*, 133, Oct, pp. 314-337.		X

Appendix VII: Tables of SLR data on business process themes and features

Table VII.1: Identification of Key Governance Process and Associated Themes in the SLR

Search string	**Process & sub-processes**		**Total number of articles**	**Reference articles***
1 – Features *(78 articles analysed)*	GOVERNANCE		77 *(99%)*	All articles excluding 57
	Sub-processes	Standards, policy & reporting	71	All articles excluding 11, 45, 57, 108, 125, 140, 144, 153,155, 170, 173
		Legislation & regulation	67	All articles excluding 11, 45, 57, 108, 125, 140, 144, 153, 155, 170, 173
		Executive function	30	Including articles no. 1, 7, 11, 23, 25, 26, 27, 43, 44, 51, 56, 58, 61, 79, 101, 102, 108, 118, 128, 129, 139, 14, 147, 164, 168, 189, 192, 194, 197, 199
2 – themes *(174 articles reviewed)*	GOVERNANCE		97 *(56%)*	Including articles no. 1-6, 10, 12, 14, 16, 17, 22, 25-28, 31, 32, 35-38, 42, 44, 46-50, 52, 54, 58, 61, 63, 70, 71, 73, 74, 76, 78, 80, 82, 84-91, 95, 96, 102, 103, 107-109, 112, 113, 115-117, 122, 123, 125, 127-129, 134, 138, 142-146, 148-151, 153, 158, 159, 166, 168, 171, 178-181, 1785, 187, 190, 192, 194-198, 200

* see Appendix VI

Table VII.2: Identification of Key Strategic Planning Process and Associated Themes in the SLR

Search string	**Process & associated themes**		**Total number of articles**	**Reference articles***
Features *(78 articles analysed)*	STRATEGIC PLANNING		78 *(100%)*	All articles
	Associated themes	Aims & objectives	71	All articles excluding 54, 63, 104, 128, 169, 196, 199
		Planning	57	All articles excluding 11, 24, 26, 45, 51, 54, 57, 58, 70, 117, 118, 128, 131, 140, 156, 170, 192-196
		Orientation	34	Including articles no. 1, 2, 7, 11, 23, 24, 43, 51, 56, 57, 61, 64, 79, 89, 92, 102, 106, 118, 128, 129, 131, 133, 140, 141, 147, 153, 156, 164, 169, 170, 173, 192, 194, 197
Themes *(174 articles reviewed)*	STRATEGIC PLANNING		23 *(13%)*	Including articles 5, 9, 21, 29, 30, 35, 40, 51, 66, 67, 81, 97, 111, 124, 126, 139, 150, 152, 165, 175, 177, 186, 188

* see Appendix VI

Table VII.3: Identification of Key Design Process and Associated Themes in the SLR

Search string	**Process & associated themes**		**Total number of articles**	**Reference articles***
1 – Features *(78 articles analysed)*	DESIGN		52 *(67%)*	All articles excluding 11, 23, 25, 43, 44, 45, 63, 70, 75, 79, 89, 102, 104, 118, 129, 139, 140, 142, 147, 153, 158, 176, 181, 191, 192, 196
	Associated themes	Re-conceptualising the supply chain	16	Including articles 1, 11, 12, 25, 27, 58, 64, 84, 101, 108, 139, 154, 155, 168, 195, 198
		Re-designing supply chain, system, network	30	Including articles 1, 11, 12, 15, 21, 25, 27, 41, 56, 58, 64, 65, 93, 106, 108, 125, 128, 131, 144, 147, 153, 155, 156, 170, 172, 173, 193, 195, 197, 198
		Re-engineering processes	45	All articles excluding 23, 27, 41, 43-45, 54, 56, 63, 64, 70, 75, 84, 89, 93, 102, 104, 118, 129, 139, 140, 142, 144, 174, 156, 158, 170, 172, 181, 192, 193, 196
2 – themes *(174 articles reviewed)*	DESIGN		35 *(20%)*	Including articles 7, 8, 13, 18, 25, 34, 39, 46, 55, 57, 74, 77, 83, 88, 92, 98, 99, 100, 105, 106, 111, 113, 119, 121, 122, 137, 149, 156, 160, 165, 167, 172, 183, 186, 201

* see Appendix VI

Table VII.4: Identification of Key Integration Process and Associated Themes in the SLR

Search string	**Process & associated themes**		**Total number of articles**	**Reference articles***
1 – Features *(78 articles analysed)*	INTEGRATION		76 *(97%)*	All articles excluding 54, 104
	Associated themes	Sustainability	55	All articles excluding 2, 11, 12, 25, 44, 51, 54, 57, 80, 104, 108, 117, 125, 128, 131, 139, 144, 155, 170, 191, 193, 196, 197
		Internal	24	Including articles 2, 11, 12, 21, 24, 43, 57, 61, 70, 80, 89, 118, 125, 129, 132, 133, 139, 141, 164, 176, 189, 191, 198, 199
		External	35	Including articles 1, 2, 11, 21, 24-26, 43, 45, 57, 58, 61, 65, 70, 80, 89, 93, 118, 125, 129, 132, 133, 142, 147, 153, 164, 168, 176, 181, 189, 191, 195, 198
		Multiple perspectives	18	Including articles 1, 7, 24, 25, 26, 57, 65, 70, 75, 93, 129, 131, 133, 139, 153, 176, 198
		Process	59	All articles excluding 25, 27, 41, 44, 45, 53, 54, 64, 89, 92, 104, 117, 128, 139, 141, 158, 168, 172, 192
		Standards	10	Including articles 15, 23, 24, 43, 45, 63, 70, 102, 131, 164
2 – themes *(174 articles reviewed)*	INTEGRATION		24 *(14%)*	Including articles 1, 7, 21, 25, 56, 57, 63, 75, 85, 92, 104, 106, 135, 139,

* see Appendix VI

Table VII.5: Identification of Key Collaboration Process and Associated Themes in the SLR

Search string	**Process & associated themes**		**Total number of articles**	**Reference articles***
1 – Features *(78 articles analysed)*	COLLABORATION		74 *(95%)*	All articles excluding 84, 108, 144, 164
	Associated themes	Coordination	46	All articles excluding 15, 21, 24, 26, 43, 45, 53, 54, 56, 58, 63, 64, 65, 84, 102, 104, 108, 114, 118, 132, 133, 141, 144, 158, 164, 169, 173, 191, 192, 194, 196, 199
		Cooperation	56	All articles excluding 15, 21, 24, 43, 53, 64, 65, 84, 108, 114, 125, 131, 132, 139, 142, 158, 164, 172, 191, 192, 197
		Partnership	61	All articles excluding 12, 27, 45, 84, 108, 131, 140, 141, 147, 156, 158, 164, 192, 196, 198
2 – themes *(174 articles reviewed)*	COLLABORATION		17 *(10%)*	Including articles 17, 19, 41, 43, 51, 62, 67, 69, 94, 96, 110, 136, 157, 168, 177, 179, 184

* see Appendix VI

Table VII.6: Identification of Key Performance Monitoring & Evaluation Process and Associated Themes in the SLR

Search string	**Process & associated themes**		**Total number of articles**	**Reference articles***
1 – Features *(78 articles analysed)*	PERFORMANCE MONITORING & EVALUATION		77 *(99%)*	All articles excluding 84
	Associated themes	Monitoring	44	All articles excluding 1, 12, 23, 26, 41, 43, 45, 54, 56, 58, 63-65, 80, 84, 92, 93, 101, 104, 108, 118, 125, 128, 131, 132, 139-141, 158, 170, 173, 192, 195, 198
		Evaluation	64	All articles excluding 12, 41, 43, 45, 63, 84, 117, 125, 141, 168, 170, 173, 193
		Audit	47	All articles excluding 2, 12, 23, 24, 41, 45, 53, 54, 58, 64, 84, 89, 92, 93, 108, 114, 125, 128, 131, 132, 139, 141, 142, 144, 155, 156, 158, 172, 195, 197, 198
		Assess	63	All articles excluding 1, 41, 43, 44, 58, 70, 84, 101, 104, 128, 147, 158, 169, 173, 191
		Certify	59	All articles excluding 1, 41, 43, 44, 58, 70, 84, 101, 104, 128, 147, 158, 169, 173, 191
		Control	48	All articles excluding 12, 21, 24, 26, 43-45, 53, 54, 58, 64, 80, 84, 89, 92, 101, 118, 125, 140, 144, 153, 158, 169, 170, 173, 176, 191, 192, 197, 199
2 – themes *(174 articles reviewed)*	PERFORMANCE MONITORING & EVALUATION		97 *(56%)*	Including articles 1, 3-6, 10, 12, 14, 16, 17, 22, 25-28, 31, 32, 35-38, 42, 44, 46-48, 50, 52, 54, 58, 61, 63, 70, 71, 73, 74, 76, 78, 80, 82, 84-87, 90, 91, 95, 96, 102, 102, 107-109, 112, 113, 115-117, 122, 123, 125, 127-129, 134, 138, 142-146, 148-151, 153, 158, 159, 166, 168, 171, 178-181, 185, 187, 190, 192, 194-198, 200

* see Appendix VI

Appendix VIII: Summary of philosophical dimensions in the research problem

PHILOSOPHICAL DIMENSIONS:	*RESEARCH ISSUE:*	*EVIDENCE IN THE LITERATURE:*	*HOW ISSUE MAY INFORM RESEARCH DESGIN:*	*INFORMS RESEARCH OBJECTIVE:*
RICH DESCIPTIVE QUALITATIVE RESEARCH	Positivism and mathematical modelling dominate progenitor research community of logistics, operations, supply chain management, and its research paradigm. There is a lack of 'descriptive, empirical investigation' that may be helpful in understanding the 'relational' component of the research problem.	Meredith (1992) Brandenburg et al. (2014) Taticchi et al. (2014)	*Qualitative methodological approach*	Objective 2
EMPIRICAL RESEARCH	The majority of research into sustainable supply chains has been theoretical to create a conceptual understanding of this nascent grounded in data from the real world. There is increasing focus across the field for analytical and empirical research as the field matures that moves beyond a purely conceptual understanding from the literature.	Burgess et al. (2006) Seuring & Müller (2008) Walker & Jones (2012) Hassini et al. (2012)	*Selection of methodology & methods focused that extends conceptual understanding by empirical research*	Objectives 1, 2 & 3
COMPLEX OBJECTIVE SYSTEMS	SCs are complex by nature, particularly adding the dimensions of sustainability. The research field to date has focused primarily on elements, echelon or just one firm. One possible reason for this is the practical difficulty of collecting data across the whole SC. Such a systematic study would "allow comparing theoretical developments more thoroughly with empirical findings and thus would greatly improve our understanding of inter-organisational issues" and lead to a deeper understanding of the field of SSCM (Seuring & Gold, 2013).	Vachon & Klassen (2008) Sarkis (2003) Beamon (1998) Seuring & Gold (2013)	*Epistemological orientation that systematically considers examining & exploring systems/structures* *Research design that is well scoped*	Objectives 1, 2 & 3
MULTIPLE SUBJECTIVE MEANINGS	The research explores the 'sustainable' component of sustainable supply chain management (SSCM) from the foci of disciplines that employ many theoretical perspectives to understand notions of sustainable supply chains and multiple stakeholder perceptions and preferences. Boons et al. (2012) refer to this as a Bateson-esque 'ecology of ideas' from the trans-disciplinary discourses of various research communities.	Carter & Rogers (2008) Sarkis (2003) Burgess et al. (2006) Shook et al. (2009) Walker & Jones (2012) Boons et al. (2012) Ahi & Searcy (2013)	*Epistemological orientation that considers examining & exploring multiple understandings of social reality and relationships*	Objectives 1, 2 & 3
THEORY BUILDING	The SCM research community has traditionally been situated in the positivist worldview, using the logical positivist analytical *a priori* tautology of mathematical modelling methodology, given the historiography of field, i.e. production, logistical and operations management. Since trends in synthetic *a posteriori* deductive and inductive empirical research across organisational sciences c. 1980s arose, there are increasingly greater calls for more synthetic propositions as can be seen by *Journal of Purchasing and Supply Management* focusing on relationship and integration processes. Increasingly analytical and empirical research, which are underpinned by a range of philosophical paradigms, are being used to build theory.	Eisenhardt (1989) Meredith (1998) Stake (2006) Burgess et al. (2006) Seuring & Müller (2008) Teuteberg & Wittstruck (2010) Hassini et al. (2012) Seuring & Gold (2013) Taticchi et al. (2014) Yin (2014)	*Empirical inductive theory development*	Objectives 2, 3 & 4
PRACTICALITY	Gap between theory building and its application by industry: There is a need across the 'complex and dynamic' research discipline to ground theory in the actual needs of managers through 'systematic observation' rather than theory testing. *Mislabelling* and lack of empirical rigour has led to confusion and contributed to inability to 'bridge the gap' between theory and practice	Meredith (1992) Binder & Edwards (2008) Walker & Jones (2012) Taticchi et al. (2014)	*Evaluating the conceptual framework developed* *Analysing the implications for theory and practice.*	Objective 3 & 4

Appendix IX: Stages to conducting a systematic literature review

Stage	*Phase*	*Task(s)*	*Rationale (identify -)*
I. Planning the review	0 – Identification of the need for a review	Narrative Literature Review A brief overview of the research field, theoretical perspectives, key arguments and methodology Identify primary and sequential keywords	Setting the scope for field of study Assessing relevancy of literature Consider disputes over relevancy, perspectives and methodologies
	1 – Preparation of a proposal for a review	Prepare research proposal and review question	Will determine all subsequent research steps
	2 – Development of a review protocol	Design review process including: - specific questions addressed by study - population - search strategy - selection criteria based on quality assessment	Helps protect objectivity and limits bias & errors Take a flexible approach explicitly stating changes made & why
II. Conducting a review	3 – Identification of research	Test search strings	Identify most appropriate for study
	4 – Selection of studies	Select studies based on research protocol & selection criteria	To rigorously select best quality literature
	5 – Study quality assessment	Refine research literature by filtering through selection criteria dimensions Document reasons for selection at each stage of refinement	To rigorously select best quality literature
	6 – Data extraction & monitoring progress	Create data-extraction form, i.e. Endnote X7 & excel	To identify information sources To link concepts, themes and results
	7 – Data synthesis	Create a narrative review of summarising findings Create a bibliographic analysis using software to identify trends & themes Create a meta-synthesis of data	Provide qualitative & quantitative summaries Map the field of research Summarise & integrate findings
III. Reporting & Dissemination	8 – The report & recommendations	Descriptive analysis Thematic analysis	Demonstrate knowledge of categories including a descriptive account of field Provide audit trail to justify conclusions Identify key emerging themes and research questions
	9 – Getting evidence into practice	To identify research objective that will encourage utilisation by practitioners	Improve translation of research evidence into practice

[Source: Tranfield et al., 2003]

Appendix X: Summary of research design plan

Title of research project:

Sustainable supply chain management: A case study of how key business processes are managed across a global sustainable chocolate supply chain network given multiple sustainability principles.

Research aim:

To understand how SSCM processes are managed in practice.

Principle research questions:

Primary question:

1. *How do varying sustainability principles among stakeholders in the supply chain network affect the management of processes in practice?*

Secondary questions:

1.1. To what extent, and in what ways, are sustainability principles related to SSCM?

1.2. What are the key sustainability business processes?

1.3. What are the mechanisms in the relationships between principles, processes and practices?

1.4. *What are the ethical implications of this for stakeholders across the supply chain?*

Question no.	Research objective	Data sources	Contribution
1.1.	1. To explore how the concepts of sustainability and SCM merge.	Conceptual: narrative literature review Empirical: case study and thematic analysis	Create new insights into our conceptual understanding of SSCM by extending theoretical propositions to help understand the phenomenon. Provide new insights into how principles effect SSCM.
1.2.	2. To describe key business processes in SSCM	Conceptual: SLR Empirical: case study and thematic analysis	Systematically define, map and characterise key business processes in SSCM research literature. Provide thick descriptions describing patterns and relationships.
1.3.	3. To explain how SSCM processes are managed in practice given varying sustainability principles.	Conceptual: Literature Empirical: case study and critical discourse and network analyses	Create new insights into the conditions of how SSC processes are managed in practice. Provide a new conceptual understanding of discipline and practice.
1.4.	4. To analyse and discuss the implications for academics, practitioners and policymakers.	Research findings	Understand the implications of this research: (i) New theoretical understanding in discipline (ii) Practice implications (iii) Policy in sustainability issues for society and government.

Appendix XI: Case study protocol

1. OVERVIEW OF THE CASE STUDY

1.1. Audience

1.1.1. Academic

- Sustainable supply chain management
- Ethical CSR
- Critical management studies

1.1.2. Practice

- Any organisation's top management looking to embed sustainability along their supply chain and collaborate with commercial and non-commercial members to do so.
- NGOs and business associations working in partnership with commercial organisations and wanting to understand processes and practices to do so.

1.2. Case study questions, hypothesis and propositions

1.2.1. Case study questions

See Chapter 3. Methodology, section 3.2. 'Purpose & aims'

1.2.2. Hypothesis

See Chapter 3. Methodology, section 3.2. 'Purpose & aims'

1.2.3. Propositions

See Chapter 6. Discussion

1.3. Theoretical framework

Stakeholder network theory

- Key readings: Granovetter (1985), Jones et al. (1997), Rowley (1997), Spekman et al. (1998), Cox (1999), Vurro et al. (2009)

1.4. Role of protocol

The protocol is a standardised agenda for my line of inquiry.

2. Data collection procedures

2.1. Contact person

Name: Kate McLoughlin

Address: Dept. of MODB, Faculty of Business and Law, Manchester Metropolitan University, All Saints Campus, Oxford Road, Manchester, M15 6BH, UK.

Phone: +447557808705

Skype: kate_mc_loughlin

2.2. Data collection plan

See Chapter 3. Methodology, section 3.4.1. 'Research Design: Data collection'

2.3. Expected preparation prior to fieldwork

- Background research to be carried out in each participant including any publications, activities, press, LinkedIN or general google search.
- Background research on organisation participant works for including all relevant information regards SSCM and participant's area of expertise.
- Background research on participant's area of expertise including industry reports, press or developments.
- Compile information into an interview guide for each participant and identify areas of interest for further inquiry during the interview that is pertinent to the research.
- Provide participants with a copy of interview questions and a brief description of interests of the study in advance of the interview to prepare and raise any concerns/issues in advance.

3. Data collection questions

The questions are semi-formal as it allows the research to be guided by participant's expertise and experience in the subject. Therefore, they were asked to offer any insights on the following questions:

1. What is your understanding of sustainability in terms of the supply chain management?

** This section explores how the understanding of sustainability has developed and how this has changed how the sector works (competitively and collaboratively), thus creating a new business model that fully integrates sustainability. It also examines how different conceptions (principles and definitions) of sustainability by partners impacts on how they collaborate; and whether there are issues of power influencing how sustainability is embedded in practice.*

2. What are the key issues and challenges in integrating sustainability criteria across the supply chain?

** This section is to understand where the issues and challenges lie and develop a model to help partners develop their capacity to put plans into practice and scale-up sustainability.*

3. What are the key processes and practices in sustainable supply chain management?

** This section examines issues such as the role certification has to play in ethical and sustainable business and redesigning the system to address critical global challenges. Specifically, looking to new business models that navigate the paths between channelling growth to capital while developing and implementing sustainability mechanisms to address issues such as shared value/value distribution, inequality and impact, and how this plays out along the supply chain.*

4. Guide for the case study report

As part of the case study design, Yin (2014) encourages researchers to consider what they can offer the participants in return for their time. Therefore, so the research may have impact in practice, I offered to disseminate findings through a variety of media. This includes a case study report stylised for an industry audience to communicate in practice, rather than theoretically, the purpose, benefits and outcomes of the research and conceptual model. Other media for disseminating findings include offers to share all academic publications, to produce articles for organisations' *e*-zines/blogs, and present findings internally or at conferences/events.

Appendix XII: Empirical data collection plan

Type of data	*Description*	*Quantity*	*Rationale*	*Research objective*	*Research proposition*
INTERVIEWS	Employees taking part in strategically managing sustainable supply chains	33			
Type 1. Internal		30	Identify the key processes in embedding sustainability, how this is done and the issues and challenges in doing so.	2	P1a, P1b
			Provide insight into the causes, conditions and events that create certain practices.	3 & 5	P3
			Examine the relationships among partners that shape principles, processes and practices	4	P2b, P2c, P2d
1.1.	Commercial partners	11	Examine the role of commercial partners		
1.1.1.	Brand manufacturer	6	Examine the role of brand manufacturers		
1.1.1.	Retailer	3	Examine the role of retailers		
1.1.1.	Farming association	1	Examine the role of farming associations		
1.1.1.	Packaging	1	Examine the role of packaging companies		
1.2.	Non-commercial partners	19	Examine the role of non-commercial partners		
1.2.1.	Business associations	9	Examine the role of business associations		
1.2.2.	Certifier	3	Examine the role of certifiers		
1.2.3.	NGO	7	Examine the role of NGO		
Type 1. External informants					
1.3.	External informants	3	Provide alternative critical and expert insights. Test generalisability of findings beyond context.	3 - 6	all
1.3.1.	Business Association	1	A business association expert also provided insights into alternative F&B supply chains (soy & palm oil), and provided expertise into pre-competitive collaboration and leveraging collective action.		
1.3.2.	NGO	1	A director of a NGO provided an alternative perspective on sustainability to the dominant TBL and Fairtrade principles, i.e. the post-colonial/anti-corporate colonialism 'value at source' perspective.		

1.3.3.	Retailer	1	A marine supply chain manager provided insights into alternative F&B supply chains and water as a critical resource.		
Type 2. Internal		9	Understand the influence of organisational orientation on cause, conditions and events Understand the influence and power commercial partners have to drive sustainability principles, processes and practices across the supply chain	3 - 5	P1a, P2a, P2c, P2d, P3
2.1.	Brand manufacturer	6			
2.2.	Retailer	3			
Type 2. External		24	Understand the influence and power commercial partners have to drive sustainability principles, processes and practices across the supply chain	3 - 5	P1a, P2a, P2c, P2d, P3
2.3.	Commercial partner	2			
2.3.1.	Farming association	1			
2.3.2.	Packaging company	1			
2.4.	Non-commercial partner	19			
2.4.1.	Business associations	9			
2.4.2.	Certifier	3			
2.4.3.	NGO	7			
2.5.	External informants	2	See Type 1. External rationale		
2.5.1.	Business association	1			
2.5.2.	NGO	1			
2.5.3.	Retailer	1			
DIRECT OBSERVATIONS		6	Observe organisational culture	3 - 5	P1a, P2a, P2c
On-site visit	Mondeléz UK & Irl headquarters	2			
	The Co-operative Group headquarters	1			
	Oxfam GB	1			
	Value Added Africa	1			
Partners event	Innovation Forum global series on sustainable smallholder development – 4th meeting	1	Observe how partners relate in practice when discussing the issues and challenges in SSCM		
DOCUMENTATION					
Organisational administrative documentation			To corroborate and augment evidence from primary sources.	-	-

	Publication material (printed and electronic)	Sustainability reports, Annual company reports, Press releases, Public information sheets, Lists of company information, progress reports, guidelines, instruction manuals, information booklets
	Website	Public information about organisation's corporate and sustainability strategic agendas, principles, guidelines, personnel, resources, programmes, activities
External documentation		
	Archival information	FAME
		Governmental and inter-governmental statistical records such as company filings and sector/industry statistics
		Survey data produced by others about case participants
	Publication material (printed and electronic)	News clippings and articles appearing in the mass media or community newspapers, Inter-governmental and non-governmental policies, reports, formal studies & evaluations
	Website	External examples of types of organisations in other commodity supply chains particularly agricultural and textile and relevant policies and activities

Appendix XIII: List of interviews

Type of organisation	*Organisation*	*Position*	*Reference code*	*Date of interview(s)*	*Length of interview*	*Type of interviewee*	*Location*
Brand manufacturer							
	Mondeléz International	Director Global Sustainability	MA1	25/04/2016	00:41:31	Phone call	UK
		Senior Manager Cocoa & Nuts Sustainability	MA2	20/06/2016	01:36:56	On-site	UK
		Order to Cash Manager UK	MA3	12/01/2016	01:22:54	On-site	UK
		Area Customer Innovation Manager – Northern Europe	MA4				
	Unilever	Global Director Sustainable Sourcing Development	MB	11/08/2016	00:55:21	Video call	Netherlands
	Mars	Global Sustainability Programme Director	MC	22/07/2016	01:40:01	Video call	UK
	Danone	Senior Marketing Director at Danone, Strategy & Branding	MD	26/10/2016	01:23:34	Phone call	China
Retailer							
	Marks & Spencer (M&S)	Sustainable Sourcing Manager	RB1	15/12/2016	01:05:48	Phone call	UK
	Tesco	Head of Climate Change and Sustainable Agriculture	RA1	23/12/2016	01:34:12	Phone call	UK
		Responsible Sourcing Manager (Sustainable Agriculture and Freshwater)					
			RA2	23/12/2016	-	Email	-
		Responsible Sourcing Manager (Marine)	RA3	09/12/2016	00:48:32	Phone call	UK
	The Co-operative Group	Food Sustainability Manager	RC1	13/12/2016	01:05:48	On-site	UK
Farming association							
	Colcocoa	Founder	M26	18/04/2017	01:12:15	Phone Call	Columbia
Packaging company							
	Amcor	Director Sustainability at Amcor Flexibles Europe, Middle East & Africa / Amcor Flexibles Americas	M24	16/02/2017	01:11:25	Phone call	Switzerland
Business association						Video call	Belgium
	Business Social Compliance Initiative (BSCI)	BSCI Senior Strategic Issues Manager	CS16.a	23/12/2016	-	Email	-
			CS16.b	06/02/2017	01:12:19	Video call	Belgium
	Chartered Institute of Logistics & Transport (CILT)	North West Regional Chairperson	CS6	17/11/2015	01:00:00	On-site	UK
	Consumer Goods Forum	Climate Change & Waste Workstreams	CS20	11/01/2017	00:54:18	Phone call	France
		Facilitator Waste & Packaging Workgroup	CS7.1	04/01/2016	01:08:33	Phone call	UK

	Institute of Grocery Distribution (IGD)	Strategy and Sustainability Manager	CS7.2	31/01/2017	01:33:05	Phone call	UK
	Roundtable of Sustainable Palm Oil (RSPO) – Retailers' Palm Oil Group / Roundtable on Responsible Soy (RTRS) – Retailers' Soy Group	Representative of Retailers' Palm Oil Group / Retailers Soy Group	CS9	03/08/2016	01:16:04	Video call	UK
	Sustainable Agricultural Initiative Platform (SAI)	Project Manager – Sustainable Agriculture	CS8.1	22/06/2016	01:00:35	Video call	Belgium
		Head, Learning, Development and Implementation	CS8.2	08/07/2016	01:10:39	Video call	Belgium
	World Cocoa Foundation	Agriculture, sustainability, and global food security	CS17.1	06/01/2017	01:28:43	Phone call	USA
		CocoaAction Director	CS17.2	27/01/2017	00:45:36	Phone call	USA
NGO							
	Barometer Consortium	Contact for the Barometer Consortium, managing director at VOICE Network and author of Cocoa Barometer	CS23	02/02/2017	01:12:40	Video call	Netherland
	Carbon Trust	Manager, Policy & Markets	CS21.1	31/01/2017	00:55:10	Phone call	UK
		Business Sustainability Strategy Consultant	CS21.2	06/02/2017	00:59:50	Phone call	UK
	Oxfam GB	Head of Private Sector Team (Acting)	CS10	18/03/2016	00:56:06	On-site	UK
	Solidaridad	Program Manager	CS18	27/01/2017	01:22:51	Video call	Brazil
	Traidcraft	Sourcing Director	CS13	24/11/2016	01:26:50	Phone call	UK
	Value Added Africa	Value Added Africa	CS11	04/01/2016	01:30:00	On-site	Ireland
	Waste and Resources Action Programme (WRAP)	Programme Area Manager - Business Engagement	CS19	02/02/2017	01:08:51	Phone call	UK
Certifier							
	Fairtrade International	Senior Advisor Small Producer Organization Development	CS25	10/04/2017	01:04:07	Phone call	Netherland
	Rainforest Alliance	Director of Sustainable Value Chains	CS15	22/12/2016	00:53:04	Video call	UK
	UTZ	Head of Monitoring and Evaluation	CS22	27/01/2017	00:55:11	Phone call	Netherland

Appendix XIV: Excerpt of evidentiary base of data collection

Coded	*Transcript*	*Audio*	*Ref. No.*	*Type of partner*	*Company*	*Position*	*Date*	*Duration*
✓	✓	✓	CS1.3	Manufacturing	Mondeléz Int.	Order to Cash Manager UK	12/01/2016	01:22:54
			CS1.3	Manufacturing	Mondeléz Int.	Area Customer Innovation Manager – Northern Europe		
✓	✓	✓	CS1.1	Manufacturing	Mondeléz Int.	Director Global Sustainability	25/04/2016	00:41:31
✓	✓	✓	CS1.2	Manufacturing	Mondeléz Int.	Senior Manager Cocoa & Nuts Sustainability	20/06/2016	01:36:56
✓	✓	✓	CS2	Manufacturing	Unilever	Global Director Sustainable Sourcing Development	11/08/2016	00:55:21
✓	✓	✓	CS3	Manufacturing	Mars	Global Sustainability Programme Director	22/07/2016	01:40:01
✓	✓	✓	CS4	Manufacturing	Danone	Senior Marketing Director at Danone, Strategy & Branding	26/10/2016	01:23:34
✓	✓	✓	CS5.1a	Retail	Tesco	Head of Climate Change and Sustainable Agriculture	23/12/2016	01:34:12
				Retail	Tesco	Responsible Sourcing Manager (Sustainable Agriculture and Freshwater)	23/12/2016	
✓	✓	✓	CS5.1b	Retail	Tesco	Responsible Sourcing Manager (Sustainable Agriculture and Freshwater)	23/12/2016	-
✓	✓	✓	CS12	Retail	The Co-operative	Food Sustainability Manager	13/12/2016	01:05:48
✓	✓	✓	CS14.1	Retail	M&S	Sustainable Sourcing Manager	15/12/2016	01:04:17
✓	✓	✓	CS24	Packaging	Amcor	Director Sustainability at Amcor Flexibles Europe, Middle East & Africa / Amcor Flexibles Americas	16/02/2017	01:11:25
✓	✓	W	CS6	Business Association	CILT	North West Regional Chairperson	17/11/2015	01:00:00
✓	✓	✓	CS7.1	Business Association	Institute of Grocery Distribution	Facilitator Waste & Packaging Workgroup	04/01/2016	01:08:33
✓	✓	✓	CS7.2	Business Association	Institute of Grocery Distribution	Strategy and Sustainability Manager	31/01/2017	01:33:05
✓	✓	✓	CS8.1	Business Association	Sustainable Agriculture Initiative Platform	Project Manager – Sustainable Agriculture	22/06/2016	01:00:35
✓	✓	✓	CS8.2	Business Association	Sustainable Agriculture Initiative Platform	Head, Learning, Development and Implementation	08/07/2016	01:10:39
✓	✓	W	CS16.a	Business Association	Business Social Compliance Initiative	BSCI Senior Strategic Issues Manager	23/12/2016	-

✓	✓	✓	CS16.b	Business Association	Business Social Compliance Initiative	BSCI Senior Strategic Issues Manager	06/02/2017	01:12:19
✓	✓	✓	CS17.1	Business Association	World Cocoa Foundation	Agriculture, sustainability, and global food security	06/01/2017	01:28:43
✓	✓	✓	CS17.2	Business Association	World Cocoa Foundation	CocoaAction Director	27/01/2017	00:45:36
✓	Partial	✓	CS20	Business Association	Consumer Goods Forum	Climate Change & Waste Workstreams	11/01/2017	00:54:18
✓	✓	✓	CS21.1	Non-Profit	Carbon Trust	Manager, Policy and Markets	31/01/2017	00:55:10
✓	✓	✓	CS21.2	Non-Profit	Carbon Trust	Business Sustainability Strategy Consultant	06/02/2017	00:59:50
✓	✓	✓	CS19	Non-Profit	WRAP	Programme Area Manager - Business Engagement	02/02/2017	01:08:51
✓	✓	✓	CS18	Non-Profit	Solidaridad	Program Manager	27/01/2017	01:22:51
✓	✓	✓	CS22	Certifier	UTZ	Head of Monitoring and Evaluation	27/01/2017	00:55:11
✓	✓	✓	CS15	Certifier	Rianforest Alliance	Director of Sustainable Value Chains	22/12/2016	00:53:04
✓	✓	✓	CS10	Non-Profit	Oxfam GB	Head of Private Sector Team (Acting)	18/03/2016	00:56:06
✓	✓	✓	CS13	Non-Profit	Traidcraft	Sourcing Director	24/11/2016	01:26:50
✓	✓	W	CS11	Non-Profit	Value Added Africa	Director	04/01/2016	01:30:00
✓	✓	✓	CS9	Business Association	Roundtable on Sustainable Palm Oil Board /RTRS board	Representative of Retailers' Palm Oil Group / Retailers Soy Group	03/08/2016	01:16:04
✓	✓	✓	CS23	Watch-dog	Cocoa Barometer	Managing Director at VOICE Network (Voice of Organisations in Cocoa in Europe	02/02/2017	01:12:40
✓	✓	✓	CS5.2	Retail	Tesco	Responsible Sourcing Manager (Marine)	09/12/2016	00:48:32
✓	✓	✓	CS25	Certifier	Fairtrade International	Senior Advisor Small Producer Organization Development	10/04/2017	01:04:07
✓	✓	✓	CS26	Farming Association	Colcocoa	Founder	18/04/2017	01:12:15

Codes: W = written response

Appendix XV: Example of pilot study interview protocol guide

INTERVIEW PROTOCOL GUIDE

Informant ID: KI7		Type of informant: Director of Global Sustainability, Mondeléz
Interviewer: Kate McLoughlin		Interviewee: Jonathan Horrell
Date: 25/04/16	Time: 9.30am	Location: Phone

Purpose

Getting a grasp on the key issues and challenges in supply chain management at the moment and would appreciate hearing about the reality.

Rationale

Semi-structured Interview with key informants chosen for their expertise of supply chain practices to inform the study prior to case selection.

Supplies and materials

- Notepad
- Interview protocol form
- Pens
- Clipboard
- Audio recording device
- Camera

Expertise of interviewee

Broad

Gatekeeper - gain introductions to 3PLs

Well positioned in terms of the myriad of stakeholders with a broad overview of practical issues across the industry

Specific

Experience in supply chain and logistics and an employee and consultant

ISO 9000

ISO 14000

Background on interviewee

Mondeléz International

Interests: Director Sustainability

Director sustainability, Global Issues Management 2011 - 2012

Director Corporate Affairs UK&I 2005 – 20011

Manager Corporate Affairs UK&I 2003 – 2005

Head of Communications, First Milk, 2000 - 2003

About: An experienced Supply Chain General Manager/Director & Consultant in Logistics, Manufacturing and Customer Service with extensive project and change management skills gained in FMCG industry both in the UK and Internationally. An effective leader with a "hands-on" approach who is also a strong team player, with major competencies in communication, planning and analysis.

Specialities:

Developing supply chain solutions through detailed business analysis and leading cross-functional teams

A dynamic leader, successful at building teams during periods of change.

Coach to both team & colleagues.

Building excellent customer relationships

Implementation of new ways of working through the involvement of people

A skilled negotiator generates win/win positions

Results orientated, achieves stretching goals both financial and operational

Notes to interviewee

Thank you for your participation. I believe your input will be valuable to this research both as an industry leader, spokesman and practitioner.

Approximate length of interview: 30 minutes, five major questions

Purpose of research:

From research into your company, we are looking into how to:

- How to understand different concepts of sustainability across the supply chain and how to manage these to meet the organisation's needs?
- How to implement plans into practice?
- How to scale up sustainable supply chains?

Therefore, your input into 2 key areas:

- What is your understanding of sustainability in terms of Mondeléz's global supply chains?
- What are the key issues and challenges in integrating sustainability criteria across your supply chains?

Direct me to documents or people who could give me more information regards key issues raised.

Methods of disseminating results:

- Academic impact: Thesis, article publications, lectures, conference paper presentations
- Practice impact: Case study report, article, presentation, industry workshops, events & conferences

<u>Interview themes</u>

1. Sustainability concepts

Response from Interviewee:

Standard definition of sustainability

Pragmatic

Biggest impacts

Integrate

Sustainability & Well-being: corporate strategy for people & planet – based on holistic

Health & Wellness: nutrition

2. Processes and practices

Sustainability agenda:

- Aligning sustainability goals
- Challenges of different perceptions – not challenges / fairly broad base of understanding of agendas/global trends
- Activism & stakeholder reports: trade sector organisations & alignment of key agendas
- Challenge is working out

Influence in associations

- Trade sector role
- As a sector:
    - Manage own SCs & impacts with own different focus
    - Trade-sector body where are the issues that are significant for the sector
    - How do we work pre-collaboratively/competitive – all looking for the same thing

Consumer Goods Forum: deforestation in supply chains – 4 tropical SCs

Identifying the agenda – CTF colleagues

Working to a harmonised agenda

Issues: need consensus where priorities are

Consensus on appropriate for setting reasonable collaborate goals

Ethicay

Corporate & Internal communication

Approach as a business strategy in the way we do business

Appropriately identified the right priorities based on analysis

Way to embed the actions: ways to implement efficient & effective

Reduce greenhouse gases & waste –defining with aspiration &grounded on what's achievable – what existing tools & processes

Supplier management: engaging suppliers – progress in these areas.

Supplier engagement & knowing who to talk to: to make progress to improve sustainability in Agri SCs requires high engagement outside of direct supply. So who is communicating with farmers? Failure to align with mission & objectives, origin government structures engagement.

Governance structures

Partnerships

Scaling up

Limited staff

Silo working

Disseminating knowledge

Every SC is different but in almost every case is sector-wide reform & mainstream broader impact. Level of influence will vary. Time restraint. Palm Oil RSPO system – more focused on collaborative platform

Key issues

Goal setting

Everyone knows broad agenda

Analysis is important: e.g. LCA tools are very helpful

Led by the data

Socio-economic is much harder to form a view as it is often not well researched.

Not members of UN Global Compact but very important, e.g. principles and framework

Build a picture of risks & opportunities

Stakeholder engagement

Collaborative action

3. Direct to further documents or people

Response:

JH

I haven't thought of anyone beforehand.

I am not going to offer up any more colleagues because I think we need to be mindful of how many of us chip in. In terms of other organisations, was there any type of organisation or place in particular you were thinking of?

KMcL

Well in terms of the conversations we've just had with your engagement with global associations. To be able to talk to with somebody with the CGF would be very interesting

JH

OK let me think on that. I've got your email. But let me think on that because I would only refer you to people who have the capacity and time to pick up on that.

KMcL

OK thank you very much for your time.

I'll keep you posted and let you know findings etc…

Appendix XVI: Example of pre-interview email with questions and ground rules

Hi Carla,

I am delighted you are kindly giving your time to participate in this study.

Please send me your phone number or Skype address for me to call you on.
I have provisionally set the time for 10am GMT / 11am CET.

INTERVIEW DETAILS

The interview will take approximately an hour and will be recorded for transcription purposes. Please let me know whether you prefer to remain anonymous or any particular terms you would like adhered to in any future publications of this work.

The questions are semi-formal as it allows the research to be guided by your expertise and experience as we delve into the subject. Therefore, any insights you could offer on the following questions would be invaluable to building the research project:

1. What is your understanding of sustainability in terms of the supply chain management?

** This section explores how the understanding of sustainability has developed and how this has changed how the sector works (competitively and collaboratively), thus creating a new business model that fully integrates sustainability. It also examines how different conceptions (principles and definitions) of sustainability by partners impacts on how they collaborate; and whether there are issues of power influencing how sustainability is embedded in practice.*

2. What are the key processes and practices in sustainable supply chain management?

** This section examines issues such as the role certification has to play in ethical and sustainable business and redesigning the system to address critical global challenges. Specifically, looking to new business models that navigate the paths between channelling growth to capital while developing and implementing sustainability mechanisms to address issues such as shared value/value distribution, inequality and impact, and how this plays out along the supply chain.*

3. What are the key issues and challenges in integrating sustainability criteria across the supply chain?

** This section is to understand where the issues and challenges lie and develop a model to help partners develop their capacity to put plans into practice and scale-up sustainability.*

I would be more than happy to share thesis and reports upon completion. If I can do anything else as thanks and help disseminate the findings, please do not hesitate to let me know.

Many thanks,

Kate

Appendix XVII: Case Study Tactics for Four Design Tests

Tests	*Case study tactic*	*Phase of research in which tactic occurs*	*Evidence in research project*	*Rationale of evidence*
Construct validity	• Use of multiple sources of evidence	Data collection	Table 3.3 – 'Summary of data collection methods'	Triangulation
	• Establish chain of evidence	Data collection	Report: Appendix XI – 'Case study protocol'	A guide to anticipate the way case study reports are to be completed.
			Database: NVivo data analysis software to hold electronic files, portfolio and Appendix XIV 'Excerpt of evidentiary base of data collection'	Preserve collected data in a retrievable form. Actual evidence contained in data sources.
			Citations: Evident in database & discussed in findings	Procedural guide for data collection to link questions to protocol topics.
			Protocol: Appendix XI – 'Case study protocol'	Specific questions to collect data, and the sources of evidence for addressing questions.
			Questions: Appendix XI – 'Case study protocol' and NVivo data analysis software holding copies of transcripts	
	• Have key informants corroborate findings and evidence	Data collection	Triangulation	Corroborating essential findings & evidence presented.
Internal validity	• Do pattern matching	Data analysis	NVivo data analysis software	Achieve saturation of data for congruence with predicted patterns in the conceptual model without threats being found to accomplish literal and theoretical replication.
	• Do explanation building	Data analysis	NVivo data analysis software	To establish causal links that explain how to manage SSCM processes in practice given multiple interpretations of sustainability.
	• Address rival explanations	Data analysis	Chapter 2. Literature Review Chapter 3. Methodology Chapter 6. Discussion	Consider rival threats to validity that constitute another group of rival explanations.
	• Use logic model	Data analysis	NVivo data analysis software	Matching empirical events to theoretically predicted events

External validity	• Use theory in single-case studies	Research design	Chapter 3. Methodology – Research questions, research strategy and theory development	Augmenting the study design with 'how' questions as a critical test for analytical generalisation to develop theoretical propositions or whether rival explanations are necessary.
	• Use replication logic in [embedded] multiple-case studies	Research design	Chapter 3. Methodology – Research questions, research strategy and theory development	Attention given to subunits and their theoretical replication selected to enhance insights into critical propositions.
Reliability	• Use case study protocol	Data collection	Appendix XI – 'Case study protocol'	Evidence for reliability of research
	• Develop case study database	Data collection	NVivo data analysis software to hold electronic files, portfolio and Appendix XIV 'Excerpt of evidentiary base of data collection'	Evidence for reliability of research

Source: Adapted from Yin (2014:45)

Appendix XVII: Summary of Qualitative Data Analytical Techniques

Focus of analysis		***Principles***			***Process***			***Practice***	
Research objective(s)		1 & 3			2 & 3			1 & 3	
Research question(s)		1.1. & 1.3.			1.2. & 1.3.			1.3.	
Ontology					Nominalist and Idealist				
Epistemology		Constructionist			Critical Realist			Constructionist	
Analysis aim		Explore and explain			Describe and explain			Explore and explain	
Analytical method	TA	SNA	CDA	TA	SNA	CDA	TA	SNA	CDA
Analysis process	Identify, describe & interpret sustainability, emphasising manifest content	Identify stakeholders, classify their principles and explain how patterns of relationship translate into sustainability orientation towards particular principles.	Examine how an understanding of sustainability is produced. Examine how meaning is created at micro, meso & macro levels.	Identify, describe & interpret key business processes, emphasising manifest content, thematic mapping of process model	Explain the processes in the context of how they are managed in practice across the supply chain network.	Examine how an understanding of business processes is produced. Examine how meaning is created at micro, meso & macro levels.	Identify, describe & interpret, emphasising manifest content	Identify the ties and characterise the links to explain the nature and scope of relationships that result in varying behaviours,	Examine how an understanding of practices is produced. Examine how meaning is created at micro, meso & macro levels.
Techniques	Triangulation, Literal & theoretical replication, Data reduction, Saturation, Data display	Network mapping, Centrality: Closeness, Betweenness, Eigenvector ratio. Density	Textual analysis, Discourse practice, Social practice	Triangulation, Literal & theoretical replication, Data reduction, Saturation	Network mapping, Centrality: Closeness, Betweenness, Eigenvector ratio. Density	Textual analysis, Discourse practice, Social practice	Triangulation, Literal & theoretical replication, Data reduction, Saturation, Data display	Network mapping, Centrality: Closeness, Betweenness, Eigenvector ratio. Density	Textual analysis, Discourse practice, Social practice

Theoretical interpretation		Inductive			Nomothetic			Inductive	
Audience	Academics & practitioners looking who need to understand that different conceptions of sustainability effect how supply chains are managed and to understand how to manage sustainable supply chains.	Policy makers and interventionists (such as business innovators or NGOs) the sustainability discourses in use.	Academics & practitioners who need to understand the political & ethical implications of different concepts of sustainability. Policy makers and interventionists (such as business innovators or NGOs) the sustainability discourses in use.	Academics & practitioners looking who need to the key business process in SSCM and to understand how to manage sustainable supply chains.		Academics and practitioners who need to understand the political & ethical implications of process management. Policy makers and interventionists (such as business innovators or NGOs) the process discourses in use.	Academics & practitioners looking who need to understand that different practices effect how supply chains are managed and to understand how to manage sustainable supply chains.		Academics & practitioners who need to understand the political & ethical implications of different practices. Policy makers and interventionists (such as business innovators or NGOs) the practice discourses in use.
References	Sobh et al. (2006), Starks et al. (2007), Easton (2010), Vaismoradi et al. (2013)	Meyer & Rowan (1977), Borgatti & Li (2009), Smith et al. (2009), Hansen et al. *(*2010), Rowley (2017)	Starks et al. (2007), Fairclough (1992)	Sobh et al. (2006), Easton (2010), Vaismoradi et al. (2013)	Meyer & Rowan (1977), Borgatti & Li (2009), Smith et al. (2009), Hansen et al. *(*2010), Rowley (2017)	Starks et al. (2007),	Sobh et al. (2006), Starks et al. (2007), Easton (2010), Vaismoradi et al. (2013)	Meyer & Rowan (1977), Borgatti & Li (2009), Smith et al. (2009), Hansen et al. *(*2010), Rowley (2017)	Starks et al. (2007)

Appendix XVIII: Key Characteristics of Participant Commercial Network Members

	Organisational Orientation					***Sustainability Principles & Priority***	***Supply Chain Orientation***			
Company	***Organisation Type & Description***	***Approx. Turnover (2016)***	***Organisation Structure***	***Organisation Culture***	***Organisation Strategy***		***Operations***	***Market***	***Supply Chain Structure***	***Cocoa Stats***
Mondeléz International	Manufacture American snack food manufacturer specialising in confectionary	£19.25 billion	Publicly listed MNC 126 shareholders: hedge funds & activist investors 648 companies 602 subsidiaries 1 chairman/CEO 13 directors 11 executives	Deliver shareholder value Moderate corporate culture Clear values	Deliver growth of which well-being is a one	Sustainability part of broader well-being agenda. SC Sustainability environmental emphasis on resources & agriculture. Committed to 9 SDGs & Paris Agreement	> 90,000 150 sites across 80 countries, primarily in Europe & AMEA regions, and 130 distribution centres primarily in North America.	5 market segments: 1. Latin America 2. Asia 3. Middle East & Africa 4. Europe 5. North America. Sells 58 snack brands including 9 billion-dollar brands. Accounted for over £18.5 billion sales & £1.85 billion in profit	Direction: sourcing Strong SC partnerships, Direct control Strong in-house programmes & reporting Weak network collective action	Uses 450,000 tons annually 50,000 certified sustainable by Fairtrade Origins: Cote d'Ivoire, Ghana, Indonesia, India, Brazil & Dominican Republic
Unilever	Manufacture European consumer goods manufacturer, specialising in home care, personal care, refreshments & foods	£43.15 billion	Publicly listed MNC 143 shareholders 245 companies 235 subsidiaries 1 CEO 25 directors 13 executives	Deliver sustainable shareholder value Embedded corporate culture & values	Deliver growth as a sustainable business	Sustainable living as blue print for business model. Formative leader in sector transformation Committed to 5 SDGs goals & Paris Agreement	169,000 employees in 100 countries, 306 factories in 69 countries, 400 warehouses	3 market segments: 1. The Americas, 2. Europe 3. Asia/Middle East & Turkey/ Russia and Ukraine Belarus Approx. 2.5 billion consumers daily 400 brands including 13 billion-dollar brands. Top 25 account for nearly 75% of sales. Food accounted for £9.25 billion sales & £1.48 billion profit.	Direction: sourcing SC partnership Strong network collective action, Internal programmes, External reporting & programmes Internal & external evaluations	Uses 15,800 tons annually Certified using Rainforest Alliance & Fairtrade: 2 leading brands 100% & remaining products 98% Origins: Cote d'Ivoire & Ghana
Mars Inc.	Manufacture American family-owned	£25.9 billion	Privately held MNC Unavailable due to limited financial	Secretive Embedded corporate	Secretive Responsible business and	Recently committed	> 85,000 employees	41 brands including 9 billion-dollar brands Chocolate:	Direction: sourcing	Uses 390,000 tonnes annually

	packaged food manufacturer specialising in packaged foods, confectionary, beverages, pet food & science		and operational information	culture & values	economics of mutuality reorientation	leader to sector transformation Strong environmental focus Committed to 17 SDGs goals & Paris Agreement	Approx. 420 factories across 80 countries	29 brands including 5 billion-dollar brands. Employees 16,000 across 21 countries Market share: Confectionary = 13% Chocolate = 13.8%	Strong SC partnerships, Direct control Strong in-house programmes & reporting External evaluations Weak network collective action	117,000 certified Rainforest Alliance certified 3,944 hectares & 2,882 farmers Aims 100% sustainable by 2020
Danone	Manufacture European packaged food manufacturer specialising in medical nutrition products, dairy, baby food & beverages	£17.97 billion	Publicly listed MNC 74 shareholders with founding family retaining majority shares 445 companies 186 subsidiaries 1 chairman member 15 directors 1 CEO 9 executives	Secretive Deliver shareholder value Strong cultural heritage of business & society	Secretive Strategic reorientation towards a B Corp type company by 2030 Develop innovative business model	Strong social commitment Based on Co-operative & sustainable development principles Committed to SDGs goals & Paris Agreement	< 100,000 employees 130 countries	13 brands generated £1.3 billion profit 3 market segments: 1. Europe 2. Asia-Pacific, Latin America, Middle East & Africa 3. Commonwealth of Independent States & North America 80% sales revenue in Europe 60% sales generated outside of Europe 53% sales in emerging markets	Direction: procurement SC partnerships, Direct control In-house programmes & reporting External evaluations Weak network collective action	One of its B-Corp subsidiaries sources 100% sustainable cocoa
Tesco	Retail Global consumer goods retailer, specialising in groceries	£40.7 billion (£359 million net profit)	Publicly listed MNC 117 shareholders: hedge funds & activist investors 424 companies 432 subsidiaries 1 chairman 12 directors 12 executives	Moderate corporate culture Changing values	Deliver shareholder value for growth Strategic reorientation & business model to become a responsible business	Societal focus includes environment, human rights and collaboration Committed to SDGs goals & Paris Agreement	480,000 employees 6,809 stores globally	79 million customers per week globally Ranked/Market Share: 7th globally/1.2% 1st UK/21.2%	Direction: sourcing & waste SC partnerships, Direct control In-house programmes Medium network collective action	Sells branded and own-label chocolate Committed to 100% sustainable by 2018
Marks & Spencer	Retail Leading UK consumer goods retailer with a global presence specialising in mainly own-	£8.88 bn £5.4bn for food (net profit £592mn	Publicly listed MNC 98 shareholders 112 companies 111 subsidiaries 1 chairman 12 directors 12 executives	Strong corporate culture & values	Deliver sustainable shareholder value Industry leader in responsible business model Strategic focus	Strategic focus Sustainability embedded in business strategy & model Committed to SDGs goals & Paris Agreement	> 85,000 employees 1,433 stores globally, 979 located in the UK Sources thousands of raw materials from over 70 countries & 400 suppliers	8.3 million customers per week in the UK 3 market segments: 1. Europe 2. Asia 3. Middle East Ranked/Market Share: 12th UK/1.4%	Direction: sourcing SC partnership Strong network collective action, Internal programmes, External reporting & programmes	Cocoa used in over 1,000 products 8,000 tons (0.01% of world supply) from over 100 suppliers, 3 of whom supply over 70%

	label product food & clothes range				Sustainability embedded in business strategy & model				Internal & external evaluations	Committed to 100% sustainable by 2017
Co-operative Group	Retail Largest consumer co-operative in the UK & astest growing UK retailer specialising in Fairtrade & ethical food products	£8.88bn 28% food sales (net profit £58.5mn)	Co-operative 4 million members, 90,000 active members	Ethical co-operative principles at the core of organisational culture & values	3-year strategy 2014 -2017 the rebuild the group's commitment to social sustainability	Sustainability part of core ethics & social orientation Strong environmental focus Fully committed to SDGs goals & Paris Agreement	> 69,000 employees 2,774 stores in the UK	Ranked/Market Share: 5th UK/4.9% Largest retailer of Fairtrade products in the UK, of which private label own brands which accounted for over £14.8 million in sales	Direction: sourcing Strong SC partnerships, Direct control Strong in-house programmes & reporting External evaluations Weak network collective action	Cocoa used in over 200 own-label brands 2,848 tons Committed to 100% Fairtrade by 2017
Amcor	Packaging Australian MNC packaging company, specialising in flexibles & rigid plastics with over 95% sales in F&B, healthcare & tobacco packaging	£7.04 billion	Publicly listed MNC, 71 shareholders, 223 companies & 90 subsidiaries, 1 chairman & non-executive director, 10 directors on board, 1 CEO/MD & 9 members of management team	Deliver increased shareholder value 10% per annum by focusing strategic agenda	Deliver growth of which innovation and industry leadership are focused on for differentiation	Environmental & social impact Reduce environmental & social effects of business & industry overall. Strong responsible packaging & environmental impact focus	> 31,000 employees 195 sites in 43 countries, 8 of which are in the UK	Product sales: 1. 68% flexibles 2. 32% rigid plastics About 20% flexible plastic sales in confectionary, such as resealable pouches 4 market segments: 1. Western Europe, 2. North America, 3. Australia & New Zealand, 4. emerging markets (30% sales)	Sectoral leader in packaging, Collective action, Partnership	n/a
Colcocao	Farmer Association Columbian company represents 4,400 cocoa growers, 35% of whom are female	Net income 1.5 min. wage per farmer @ Columbian rate = £10.31 per 8 hr day	Association of 12 co-operatives	Prosperity & sustainability for the producers, their families & communities, it represents.	Deliver sustainable prosperity through the Echar Pa'lante programme verified & monitored by CERES International	Economic prosperity, quality, productivity, social, environmental & happiness	4,400 producers 60 buying stations 10 departments, 8 of which are in the north-west Aim 800 kg / ha per year productivity	Top trading customer is Ferrero	Partnership	100% certified sustainable cocoa

Appendix XVIX: Key Characteristics of Non-Commercial Participants

Organisation	Organisation Type	Description	Employees/ Members	Direction of Focus on Supply Chain	Area of Supply Chain Activity	Sustainability Principles
Chartered Institute of Logistics & Transport (CILT)	Trade association UK logistics & distribution association Registered charity	Est. 1919 Professional development of the sector through networking, advocacy and policy representation, professional recognition through membership status, qualifications and training &education. Part of CILT international	33,000 members globally	Across the SC network	Logistics & distribution Pre-competitive	Viable Energy use, carbon emissions, wasted miles, labour issues
Institute of Grocery Distribution (IGD)	Trade association Convened by UK grocery retailers & now includes members from across the grocery SC representing primary producers, secondary sector manufacturing companies, tertiary sector logistics, distribution and retail services, and associated trade associations and government bodies. Registered charity	Est. over a hundred years ago Activities and services include knowledge exchange, research, training, events, tools, projects, special interest groups and charitable impact. It has established 130 partnerships across the F&B supply chain network	> 1,000 members	Across the SC network Primarily downstream with some upstream activity	Grocery distribution Pre-competitive	Viable Waste reduction Collaboration
Sustainable Agriculture Initiative Platform (SAI Platform)	Trade association Located in Brussels Focused on sustainable agriculture in the F&B sector. Non-profit organisation	Est. 2002 by Unilever, Danone & Nestlé. Engaged in knowledge exchange, training, workgroups, projects, programs, and tools.	> 90 members including traders, manufacturers & retailers	Upstream with some network activity	Farming Pre-competitive	Viable Development of sustainable agriculture to ensure sustainable supply
Business Social Compliance Initiative (BSCI)	Trade association Located in Belgium Focused social compliance in factories & on farms. Non-profit organisation	Est. 2003 under the Foreign Trade Association It provides resources and support including codes of conduct, monitoring and auditing tools, experts and databases, training, knowledge exchange and networking opportunities	> 1,700 members including traders, manufacturers & retailers	Upstream with some downstream & network activity	Primary & secondary production Pre-competitive	Equitable
Consumer Goods Forum (CGF)	Trade association Located in France Focused on cross-value chain issues from the perspective of retail and manufacturing companies. Non-profit organisation	Est. 2009 following merger of CIES, Global Commerce Initiative & Global CEO Forum. The board of directors includes 50 retail & manufacturing CEOs and Chairpersons. It provides a range of services including knowledge exchange, networking, training, resources, tools, events, publications and research, with programs and committees dedicated to sustainability issues.	> 400 retailers, manufacturers, service providers and other stakeholders	Across the SC network	Retailers, Manufacturers & Service providers Pre-competitive	Viable Climate change, deforestation, refrigeration & waste
Oxfam	NGO Located in England International NGO focused on sustainable development services and	Est. 1942 International Confederation of 20 charitable organisations.	> 5,300 employees > 22,000 volunteers	Upstream	Developing world: farming & factories Partnership	Equitable Sustainable development Focused on poverty & fair trade

	global advocates & policy representation on government and intergovernmental organisations. Registered charity	Works in 90 countries worldwide, alongside partner organisations providing policies, plans, reports, campaigns, advocacy, liaison offices, disaster relief, programs, projects, training as part of a complex strategy to fight poverty.			Network collective action	
Solidaridad	NGO Located in The Netherlands Cocoa natural resources, agriculture and aquaculture production. Non-profit organisation	Est. 1969 Activities: 1. Provides teams at a local level to cooperate with partners on programs & reporting. 2. Facilitates multi-stakeholder SC collaboration for sustainable market transformation, providing training and sharing knowledge. 3. Participates on industry initiatives such as the following roundtables: soy, palm oil & sugarcane.	42 European employees Supported 638,000 farmers, 209,000 workers in 27 countries 78 partnerships including 28 corporate, 14 donor & 6 government organisations 6.5% cocoa programme partners	Upstream	Developing world: farming Partnership Network collective action	TBL Sustainability principles
Traidcraft	NGO Located in the UK Provides sustainable development services: fair trade, campaigns & development.	Est. 1979 Based on principles of fair trade it jointly founded the Fairtrade Foundation. For example, it successfully campaigned for a supermarkets watchdog – the Groceries Code Adjudicator. They sold the first fair trade chocolate bar as part of their chocolate range and support growers in Peru, Bolivia, Ivory Coast and the Dominican Republic.	> 140 employees	Upstream	Developing world: Africa, Asia & Latin America Partnership Network collective action	Equitable Sustainability principles Fair trade
Waste & Resources Action Programme (WRAP)	NGO Located in the UK Promote sustainable supply chain & consumer waste management. Non-profit organisation	Est. 2000 Works with the F&B, clothing/textiles and electricals/electronics industries by providing research & evidence, voluntary agreements, consumer campaigns, training, grants and financial support. Stakeholders include governments, businesses, communities.	197 employees 9 trustees 9 executives Partnerships: 10 government 4 business (including signatories) 12 trade associations, institutions & charities	Across the SC Globally works on international projects in over 20 countries	Partnership Network collective action	Viable Product & procurement sustainability
Carbon Trust	NGO Located in the UK Delivers environmental services to business customers for a sustainable, low-carbon economy Non-profit organisation	Est. 2001 Provides scientific and technical advice, reports, guides & tools, programs including design, delivery & financing, certification & assurance. Areas of expertise include supply chain sustainability and waste & resource footprinting	Approx. 180 employees 7 directors 13 advisory panel members Operates in 38 countries on over 1,100 projects	Across the SC Based in the UK, China, Mexico, Brazil, India, South Africa and the USA	Partnership Network collective action	Viable Sustainable low carbon
Cocoa Barometer	NGO Located in the Netherlands	Originally the Tropical Commodity Coalition became the Cocoa Barometer in 2009.	11 participating organisations including VOICE Network, FNV Mondiaal, Hivos, Solidaridad	Upstream	Farming	Equitable Value distribution

	European members network of primarily civil society actors including trade unions, international organisations & NGOs working for sustainability in the cocoa sector.	Provides resources & data including reports and consultation papers. Members act as critical analysts and advocates of global justice, value distribution and sustainable development in cocoa.				
UTZ	Certifier Located in USA Working to conserve biodiversity & sustainable livelihoods through agricultural & forestry certification & verification programs.	Est. 1987 Operates in > 78 countries > 1,343,090 million people have been trained in earth-friendly management practices. Certifies approximately 726 products across 11 sectors including 419 F&B products. 2nd largest certifier of sustainable cocoa in 2013, certifying an estimated 279,000 tons	Network of farmers, foresters, communities, scientists, governments, environmentalists & businesses 14 executives 18 directors	Upstream	Farming	TBL with viable focus
Fairtrade International	Certifier Located in the Netherlands Provides a range of services including certification, training, verification, tools & traceability systems along the SC	Est. 2002 Certifies > 13,000 products in >130 countries Largest certifier of sustainable cocoa in 2013, an estimated 297,000 tons Merger announced with CA	> 180 employees 8 supervisory board 6 standards committee members	Upstream	Farming	TBL with viable focus
Rainforest Alliance	Certifier Located in the Netherlands 2 independent organisations: 1. Sets standards & provides producer supports 2. Inspects & certifies producer organisations and audits trade	Est. 1997 Legacy reaches further back to 1988 Provides a range of programmes to complement its standards and certification, including advocacy, monitoring and impact research and reports. Certifies a broad range of agricultural commodities including cocoa, most of which comes from West Africa, Ecuador, Peru and the Dominican Republic. 3rd largest certifier of sustainable cocoa in 2013, certifying an estimated 60,000 tons	Partnerships Certified 1.6 million farmers across 75 countries in 2015. 27% growth rate of certified cocoa. 79% certified conventional cocoa 21% certified organic cocoa	Upstream	Farming	TBL with equitable focus

Appendix XX: Description of Commercial and Non-Commercial Stakeholders in the Chocolate Supply Chain Network

Commercial Partners

Cocoa Farmers **-** The supply of these agricultural commodities comes from primary production suppliers such as farm and plantations. This means engaging with over 5 million smallholders, farm workers, farming communities and farming associations. These stakeholders represent global workforces with diverse traits from developing to developed countries in many different biomes each with their own set of geopolitical and macroeconomic issues. It is the number of risks and uncertainties in operating globally and in emerging markets that continues to adversely impact commodities making them volatile and potentially constrained. One of the biggest challenges in developing programmes to transform cocoa production has been to identify cocoa farmers. As such, those engaged directly with farming communities, such as traders, processors and NGOs, are important gatekeepers. There are many examples of farming associations working under the principles of sustainability and working with NGOs and commercial partners to improve the livelihoods of cocoa farmers, their families and communities. For example, such as Colcocoa who represents 4,000 producers, Conacado who represents 182 small-scale producer associations and 10,000 producers, and ECOOKIM who represents 23 cooperatives and 12,532 producers.

Regards participants in the subcase studies, five farming associations were approached to participate and one accepted. The farming associations including Madécasse from Madagascar, Ekookim from Côte d'Ivoire, Conacado from Dominican Republic and Colcocoa from Columbia. While all four use the co-operative organisational model, each represents diversity in their geographical spread, cultural heterogeneity, and types of business models, Madécasse's value at source model, Conacado and Ekookim's Fairtrade model, and Colcocoa's sustainable prosperity model. However, only Colcocoa agreed to participate. They provided primary data including an interview and observation at the trade event, and documentation as secondary data. The remaining four were not included as non-participant members of the network analysis because of the paucity of secondary data

available. This was limited to poorly populated websites and did not provide the data necessary for an in-depth study.

Traders & Processors **-** Traders represent intermediaries who buy from farmers, grind and process cocoa into mass, butter, power and liquor ingredients, and then trade with manufacturing companies. The leading companies include Olam (including Archer Daniels Midland (ADM) which it acquired in 2015), Barry Callebaut and Cargill. Previous to Olam purchasing ADM, the leading companies were known collectively as *ABC* and had grown their market share from 41% in 2006 to an estimated 70-80% of the world's couvertures (Terazono, 2014; Barometer Consortium, 2016). However, it is now estimated that Olam accounts for approximately 60% alone since its ADM takeover (Terazono, 2014). This is representative of the consolidation of power from approximately 40 grinders operating in the 1990s to the eight traders and grinders controlling approximately three quarters of the global cocoa trade. It is their sheer scale, breadth and capacity to produce, procure, process, and deliver the raw materials that makes them such a significant, powerful presence across global networks. These giants are followed by Ecom Agroindustrial, Touton, Blommor and Continaf. Not much is known about these dominant few companies as they have traditionally remained cautiously behind the scenes, yet they are considered to be powerful partners in global commodity markets (Murphy *et al*., 2012). Also, of note is the longevity of these companies; while there have been substantial changes in the other three global industries (i.e. input providers, food processors and retailers), this category has been the least affected by changes across the food system in how it does business. Their commitments to sustainable cocoa sourcing have major impacts on progress, such as value distribution (Exhibit 2) and the percentage of sustainably certified cocoa (Exhibit 3).

Manufacturers - Cocoa is sourced as an ingredient by manufacturers for snacking and confectionary products, including chocolate. The leading sourcing manufacturers (in order of 1000 tonnes used in 2013, including percentage of which is certified sustainable – Exhibit 4) include Mondeléz (450, 11.1% certified), Nestlé (430, 11.2% certified), Mars (390, 30% certified), Hersheys (200, 18% certified), Ferrero (120, 33.3%) and Lindt & Sprüngli (100, 0%) (exhibit 3). All except Mondeléz and Nestlé have made public commitments to use 100% by 2020. This in itself is contentious as, while important, may be unrealistic as the sector grapples with issues of certification and whether this is viable.

In terms of market shares within confectionary, Mars and Mondeléz are global market leaders with 13% and 12.4% of shares respectively, followed by Nestlé at 6.7% (Euromonitor International, 2017f). Within chocolate, Mars and Mondeléz are global market leaders with 13.8% and 12.9% of shares respectively, followed by the Ferrro Group with 9.3%, Nestlé at 9.7% and Hershey Co. with 7%, in 2016 (Euromonitor International, 2017i). However, in the interest of maximum variation for heterogeneity, other companies, such as Unilever and Danone, were of interest as they are members of the network because they purchase cocoa and are engaged in key sustainability issues as part of wider sectoral considerations. However, they prioritise sustainable cocoa differently because it is not a key commodity and, consequently, their strategic priority is different. Furthermore, they are both exemplars as Unilever is ranked 1st and Danone last in 10th place on the *Behind the Brands* scorecard.

Manufacturers have experienced similar trends to those of traders, i.e. a consolidation of market share and power by MNCs and their portfolio of brands, and a sector dominated by six of the world's largest brand manufacturers. For example, in 2016 Hershey's rejected a $23 billion takeover bid by Mondeléz (Kell, 2017). While in 2017, Kraft Heinz failed in a £115 billion takeover bid of Unilever (Topham, 2017). Mondeléz separated from Kraft in 2012, however media merger rumours between 2016 and 2017 boost Mondeléz's share value (Bukhari, 2017).

The size of the snacking subcategory is illustrated by all three featuring on Oxfam's *Behind the Brands* scorecard (Exhibit 6). Oxfam lists ten F&B companies, all of whom use cocoa ingredients, except for others on the list, such as Unilever and Danone, cocoa is not a primary ingredient.

Regards participating as primary participants in a subcase, seven manufacturers were approached to participate and four accepted. There included one family-owned and one publicly limited company (PLC) in both America and Europe. For the case study of the supply chain network, public content documents of the three who did not participate, alongside several other MNC manufacturers, was analysed as secondary and tertiary sources to build a broader and more in-depth understanding of the phenomenon and to triangulate (Yin, 2014). Of the four who agreed to participate, all four are listed on Oxfam's *Behind the Brands* campaign – Unilever in 1st place with a score of 74%, Mars in 5th with a score of 49%, Mondeléz in 7th with a score of 41% and Danone 10th with a score of 36% (Exhibit 6) (Oxfam,

2017b). As such, they represent the variation of orientation toward sustainability. Another characteristic is that cocoa, as a commodity, has different value to each company: for two it is a primary ingredient across their brand portfolio and therefore are the two largest manufacturing procurers of cocoa; for one it is an essential ingredient in ice-cream in which it is a category leader, and another it is one of thousands of ingredients used in some of their products. Therefore, each has a different imperative to act.

Retailers - Grocery retailers include supermarket chains, wholesalers, distributors, convenience stores, petrol stations, chemists, discount stores, and other retail food outlets through direct store delivery, company-owned and satellite warehouses, distribution centres, vending machines and other facilities, as well as through independent sales offices and agents. The global grocery retail sector had an estimated worth of over $5 trillion globally in 2016 (Euromonitor International, 2017b). The leading market shares are attributed to Wal-Mart as 6.3%, Kroger at 1.8% and Schwarz at 1.6%. The Institute of Grocery Distribution (IGD) ranks Wal-Mart, Carrefour (market share 1.6%) and Tesco (market share1.5%) as global retailers, with a further eight categorised as 'leading international' retailers (IGD, 2006; Euromonitor International, 2017b). These world leaders also represent a consolidation of power through globalisation since the 1970's, where economies of scale have driven this highly competitive sector to focus on store size, logistics network and volume discounts for products, giving them colossal purchasing power. As price setters for the final consumer they are under increasing pressure due to price wars and global economic market trends, their margins and profits are under pressure. None the less, retail and taxes attribute 44.2% of value distribution (Exhibit 1). Globalisation has meant vast distribution networks, investment in BRIC and MINT markets (2015) and sustainability implications across the entire supply chain. There are packaging and food waste implications as trends indicate larger volumes will be transported further distances potentially resulting in obsolete stock and 'distress selling' (IGD, 2006). Global retail in developed and developing markets means increasingly polarised markets that require provision for affluent foodies alongside discount retailing across a variety of channel mixes increasing complexity (Neilsen, 2015). Retailers are developing private labels such as in Germany where they have 30% market share, in which Lidl uses only sustainable cocoa (Barometer Consortium, 2016). This range is indicative of consumer markets where retailers are diversifying from high quality to cheap replicas, with a reported 30% higher margins due

to horizontal integration (Neiburg, 2013).

Ethical Consumer is a UK-based multi-stakeholder co-operative that runs campaigns and acts as a watchdog on key ethical issues across the consumer goods sector. It has a score table that ranks the leading UK supermarkets on ethical and environmental ratings, including cocoa, palm oil, timber, a living wage and climate change (Exhibit 7). The leading supermarkets in the UK who hold a percentage of the market share are Tesco (21.2%), Sainsbury (12.4%), Wal-Mart who own Asda (11.7%), Morrison (8.3% market share), and Aldi (5.2%) (Euromonitor International, 2017g). Other retailers worth considering are the Co-operative Group (Co-op) (4.8%) and Marks & Spencer (M&S) (1.5%) as they are considered industry leaders in sustainability.

Regards the subcases in the study, five retailers were approached to participate and three accepted. All three are top 10 category leaders in retailing in the UK (Euromonitor International, 2017b). These included two PLC's – Tesco and Marks & Spencer (M&S), and a co-operative – The Co-operative Group (Co-op). The two PLC's are differentiated by their size and corporate values. Tesco is one of the largest grocery and general merchandise retailers in the world measured by profits and revenues and one of the largest employers in the UK. It has had a highly commercial corporate culture, with a lean and competitive business model to provide cheap prices. This is radically changing in recent years to build trust, transparency and integrity, of which sustainability is a strategic goal. M&S has a different business model, specialising mainly in own brand luxury products in which ethical and sustainable sourcing is highly integrated into the brand value. The Co-op has a longstanding association with Fairtrade, founded on ethical values and principles, often an innovative leader in bringing Fairtrade products to market. All three are listed on the Ethical Consumer *Score Table* (Exhibit 7) and as with the Oxfam's *Scorecard*, they represent the variation of orientations towards sustainability (Ethical Consumer, 2017). Alongside the Co-op, M&S is considered the 'greenest' grocery retailer in the UK, compared to Tesco, which is considered one of the worst performers. All three have diverse business models, sourcing globally from commodity markets in supply chains that span continents yet have made commitments to sourcing sustainable cocoa in their own brand chocolate as well as from brand manufacture suppliers' chocolate.

3PLs **-** Distribution services are provided through 3PLs providers and warehousing. While traders are responsible for distribution of processed cocoa from primary to secondary

sectors, manufacturers commonly use 3PLs to distribute their products globally to retailers. Their impacts areas include carbon emissions from fuel and refrigeration. As such have a role to play in supply chain transformation. They remain largely undocumented, however, sustainability initiatives such as the IGD's *Transport Collaboration Guide* illustrate potential impacts of manufacturers and retailers 'sharing road miles' through their 3PL network.

Packaging **-** Product packaging manufacturers also contribute to sustainability issues. As a global industry, it had volume sales of £1.47 trillion in 2016 providing solutions for boxes, trays, cartons, containers using multiple materials including plastic, paper, aluminium and glass among others for packaged food (Euromonitor International, 2017e). As partners in supply chain networks, they also experience tight margins and increased public scrutiny and customer requirements regards sustainability standards. For example, brand manufacturers such as Mars, ensure a holistic brand image which includes labelling on packaging, recyclable materials, package optimisation that reduces deforestation, emissions and water usage in production processes and end-of-life considerations such as landfill or oceans impacts (Mars, 2007). Waste and Resources Action Programme (WRAP) reports preventing packaging waste in the supply chain will deliver step-changes to preventing 1.7 million tonnes (Mt) of food & packaging waste and returning 20Mt of material through recycling in the UK alone, saving more than 4.8 Mt of CO_2e, at an estimated £3.1 billion savings (WRAP, 2015).

Regards subcase participants, one company was approached in this category to take part in the study, Amcor. It is an Australian MNC configured to deliver shareholder value with over 95% of its sales in F&B, healthcare and packaging. Therefore, it is a packaging leader in the F&B snacking category whose insights are valuable as it also seeks to be an industry leader in sustainable impact. It is a supplementary category to the primary industries in the linear chocolate supply chain. Therefore, it is involved with primary industries upstream, i.e. manufacturing and retail, in supplementary sustainability activities to the primary materiality issues of cocoa as a core commodity.

Non-Commercial Partners

Business Associations - There is a broad range of reasons as to why organisations come together in a specific area of the network. They may also be known as trade associations, trade groups, sector associations or industry body, and are generally funded by businesses operating in that specific industry or sector. These range from commercial to non-

commercial interests and include a variety of activities including quaternary services and quinary decision-making and as lobbying groups that advance their interests. These interests tend to be economic but in the interest of this research project include those addressing sustainability issues. As such, they may have a significant influence on corporate sustainability (UNGC, 2017).

NGOs **-** NGOs are commonly described as stakeholders in SCM, however, they also can be considered partners when they provide non-commercial services that help advance the sustainability of the supply chain. Thus, it is common to find commercial companies refer to NGOs as partners as they collaborated on sustainable development initiatives at impact points along the supply chain. They also bring with them extensive experience, knowledge and technical expertise to a range of issues such as women, children, indigenous groups and communities. Working in a non-profit developmental capacity, there is a range of NGO-type organisations operating at local and international levels, within specific industries and sectors or impact areas such as energy, waste and natural resources. Through these organisations, civil society initiatives have included Oxfam's *Behind the Brands*, Solidaridad's *For the Love of Chocolate*, WRAP's *Courtauld Commitment* and the Carbon Trust's *Standard* and a host of publications including the Barometer Consortium's *Cocoa Barometer* and *Think Pieces* and Oxfam's *Towards a Sustainable Cocoa Chain.*

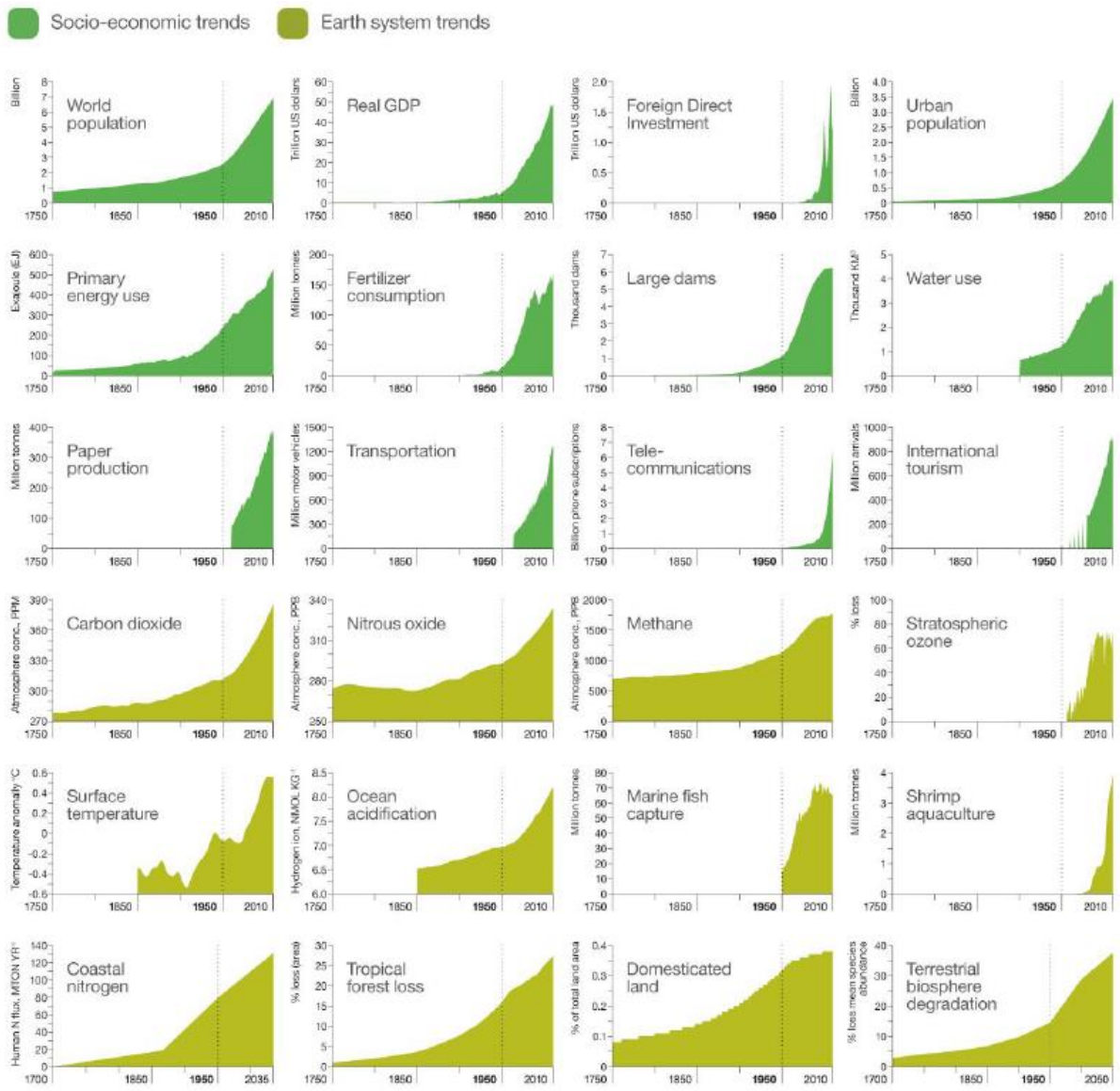
Certifiers **-** By using certification and auditing systems, commercial partners address a range of issues including supply security, transparency, cost reduction of sustainability processes, compliance, brand reputation, and public perception issues (UNGC & BSR, 2015; Barometer Consortium, 2016). There are many different types of certification depending on the commodities and impact areas such as forestry, water and cocoa. Often certification meets the requirements of Standards Bodies.

The three major bodies in cocoa production are UTZ, Fairtrade International and Rainforest Alliance (Barometer Consortium, 2016). Collectively, they account for approximately 30% of global certification trade, certifying nearly 1.4 million tons of cocoa in 2015. However, it is unknown what quantity is double or triple certified. As such, approximately 631,000 tons were sold as certifiable. Another issue is that some chocolate producers are selling chocolate 100% sustainable from 'own projects' though not certified by one of the major standard bodies.

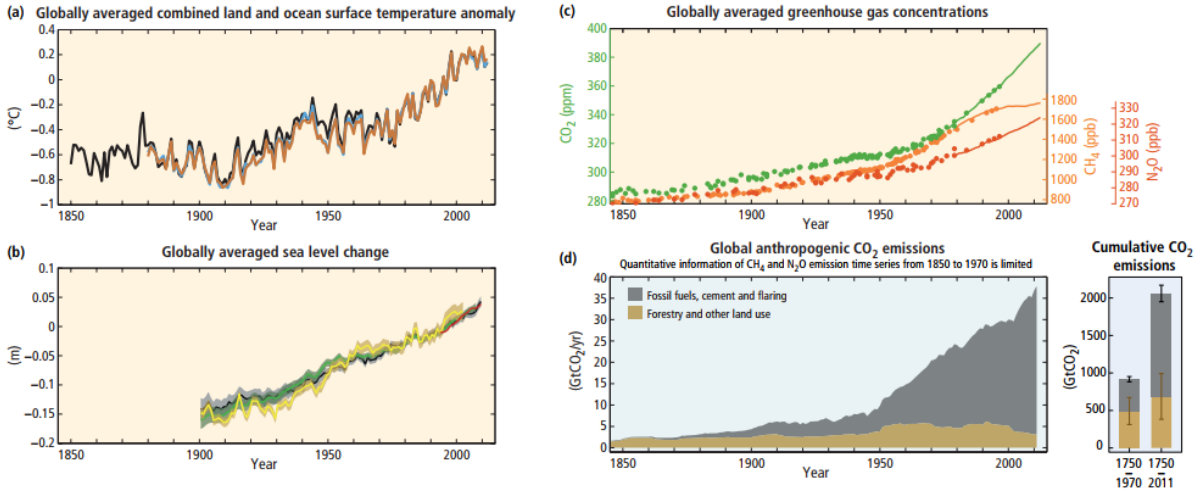
There is also the global International Organisation for Standardisation (ISO) system that develops sustainability including ISO14000 family of environmental standards, ISO37101 – Sustainable development in communities, ISO26000:2010 – Guidance on social responsibility in conjunction with GRI Sustainability Reporting Guidelines – G4, and a host of technical committees (ISO, 2017).

Government Organisations **-** National and local governments and international governmental organisations were not included because even though they are key stakeholders, they are not classified as partners within the supply chain network. They work with commercial and non-commercial partners to exchange knowledge and to provide an enabling environment, particularly where regulations and legislation is concerned. Therefore, organisations such as the UNGC and GRI resources were reviewed as part of the understanding of issues and challenges the network is addressing. Other stakeholders the UNGC recommends taking into consideration include trade unions, and specific stakeholder groups such as women, migrant workers, and children among others (UNGC & BSR, 2015).

Exhibit 1: The 'Great Acceleration' of Anthropogenic activities



Source: '*Rewiring the Economy*' (Reynolds et al., 2015):3)



Source: '*Climate Change 2014 Synthesis Report Summary for Policymakers*' (IPCC, 2015)

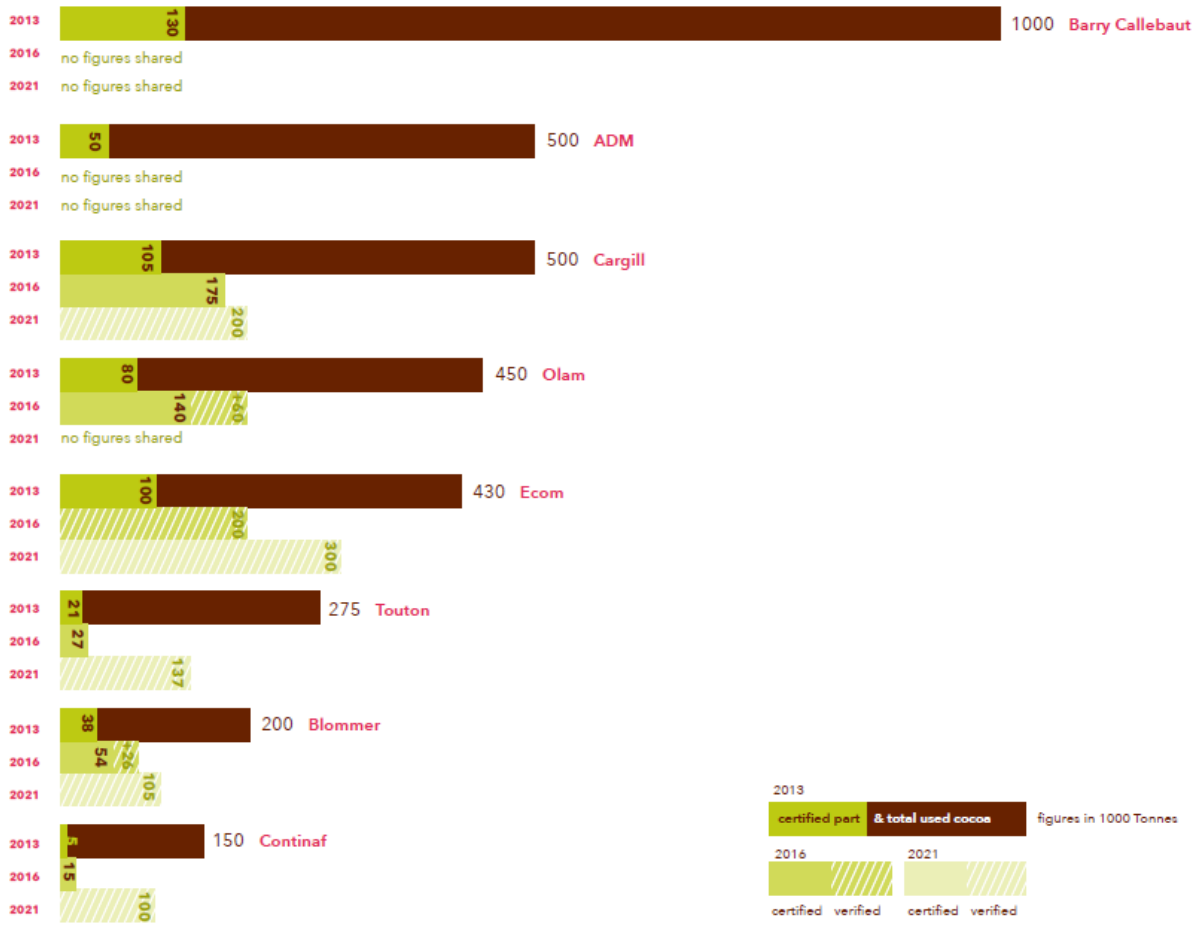
Exhibit 2 Value distribution per tonne of cocoa along the supply chain

Value Distribution	Sells	Buys	Value Added	Profit	final sale
Farmers income weighted	$ 1.874	$ 664	$ 1.210	$ 1.210	6,6%
Inland Transport	$ 1.971	$ 1.874	$ 97	?	0,5%
Taxes/MarketingBoard	$ 2.745	$ 1.971	$ 774	?	4,2%
International Transport	$ 2.793	$ 2.745	$ 48	?	0,3%
Costs port of arrival	$ 2.993	$ 2.793	$ 201	?	1,1%
International Traders	$ 3.038	$ 2.993	$ 45	$ 15	0,2%
Processors & Grinders	$ 4.434	$ 3.038	$ 1.395	$ 211	7,6%
Manufacturer*	$ 10.858	$ 4.434	$ 6.425	$ 870	35,2%
Retail& Taxes	$ 18.917	$ 10.858	$ 8.058	$ 473	44,2%

Per tonne of sold cocoa

Source: Cocoa Barometer, 2015:35

Exhibit 3 Tonnes of cocoa and certified cocoa procured by leading traders



Source: Cocoa Barometer, 2015:25

Exhibit 4: Tonnes of cocoa and certified cocoa used by leading manufacturers

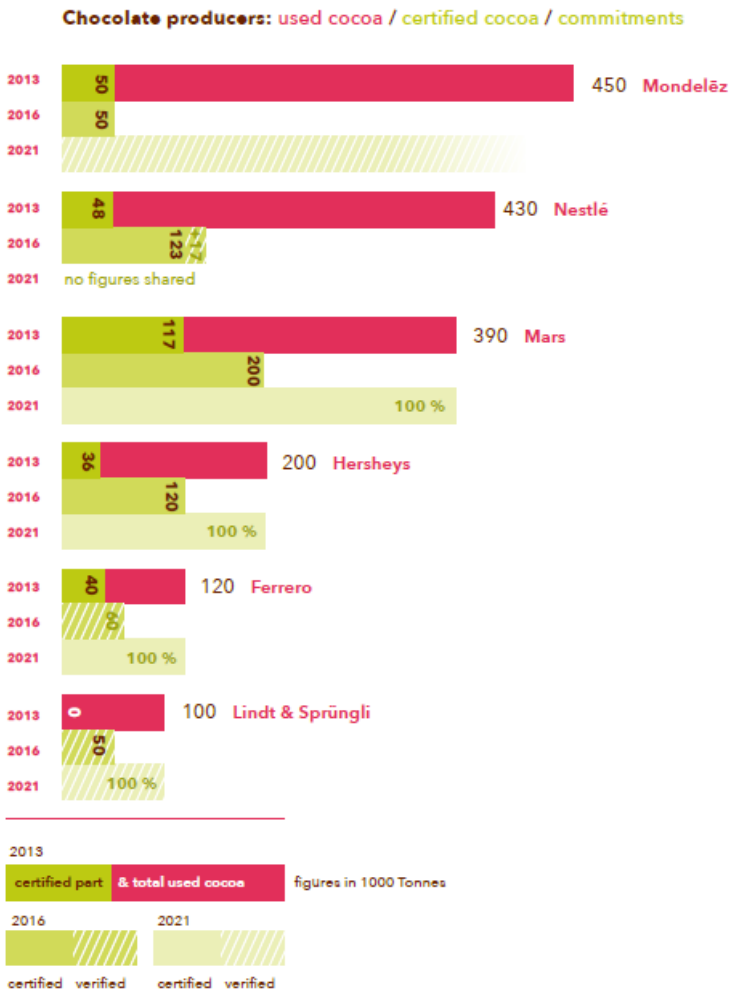
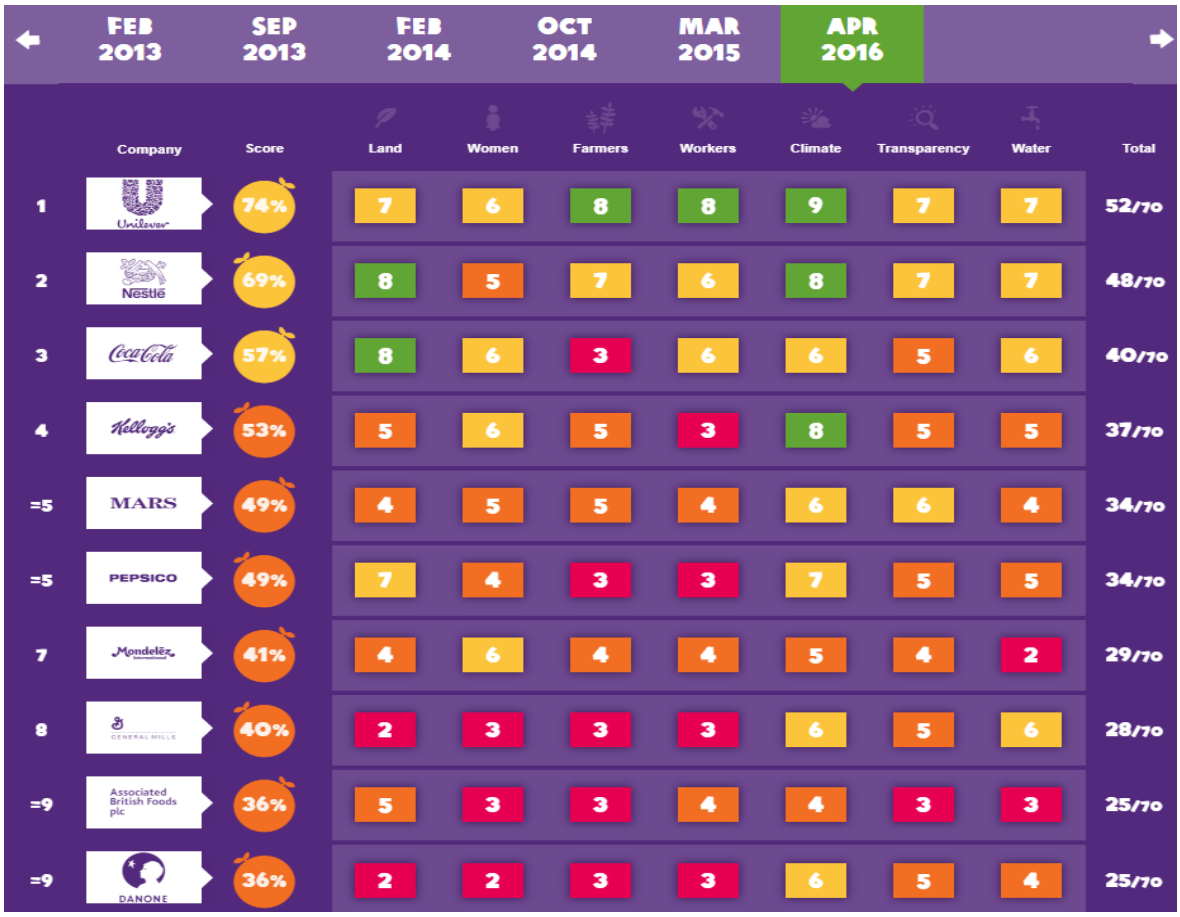


Exhibit 5: Company Market Share Comparison in Snacking Foods

Change View	2011	2012	2013	2014	2015	2016
World						
Confectionery						
Mars Inc	12.7	13.0	13.2	13.3	13.5	13.5
Mondelez International Inc	-	13.7	13.6	13.4	12.9	12.8
Nestlé SA	7.6	7.7	7.6	7.3	7.0	6.8
Ferrero Group	5.0	4.9	5.2	5.4	5.7	5.8
Hershey Co, The	3.9	4.1	4.3	4.5	5.1	5.2
Sweet Biscuits, Snack Bars and Fruit Snacks						
Mondelez International Inc	-	11.9	12.3	12.1	12.2	12.1
Kellogg Co	4.0	3.7	3.5	3.3	3.3	3.2
General Mills Inc	2.4	2.5	2.6	2.7	2.8	2.8
PepsiCo Inc	2.6	2.6	2.8	2.8	2.7	2.6
Yildiz Holding AS	0.6	0.6	0.6	2.4	2.4	2.3
Savoury Snacks						
PepsiCo Inc	23.8	23.8	24.1	23.9	24.1	24.2
Mondelez International Inc	-	3.9	3.8	3.5	3.5	3.5
Kellogg Co	1.4	3.3	3.3	3.3	3.4	3.4
Intersnack Knabber-Gebäck GmbH & Co KG	1.3	1.2	1.8	2.2	2.0	1.9
Snyder's-Lance Inc	1.0	1.1	1.1	1.1	1.2	1.9
>Chocolate Confectionery						
Mars Inc	13.2	13.6	13.7	13.9	14.4	14.4
Mondelez International Inc	-	14.4	14.3	14.3	13.8	13.6
Nestlé SA	12.0	12.0	11.8	11.2	10.6	10.2
Ferrero Group	8.1	8.0	8.4	8.8	9.3	9.5
Hershey Co, The	5.7	5.9	6.1	6.3	7.1	7.2
>Gum						
Mars Inc	32.5	33.0	33.9	34.2	34.1	33.9
Mondelez International Inc	-	29.0	28.8	28.2	27.4	27.0
Perfetti Van Melle Group	8.9	8.9	9.2	9.5	9.6	9.8
Lotte Group	5.9	5.8	5.0	4.8	4.8	4.8
Arcor SAIC	1.7	1.9	1.9	1.8	2.0	2.0
>Sugar Confectionery						
Mondelez International Inc	-	6.6	6.5	6.4	6.3	6.4
Perfetti Van Melle Group	6.0	6.0	6.0	6.1	6.1	6.1
Mars Inc	4.1	4.2	4.4	4.5	4.7	4.8
Haribo GmbH & Co KG	3.2	3.2	3.4	3.6	3.6	3.7
Nestlé SA	3.2	3.3	3.3	3.3	3.4	3.5

Source: (Euromonitor International, 2016)

Exhibit 6: Oxfam's *Behind the Brand* Scorecard



	Company	Score	Land	Women	Farmers	Workers	Climate	Transparency	Water	Total
1	Unilever	74%	7	6	8	8	9	7	7	52/70
2	Nestlé	69%	8	5	7	6	8	7	7	48/70
3	Coca-Cola	57%	8	6	3	6	6	5	6	40/70
4	Kellogg's	53%	5	6	5	3	8	5	5	37/70
=5	MARS	49%	4	5	5	4	6	6	4	34/70
=5	PEPSICO	49%	7	4	3	3	7	5	5	34/70
7	Mondelēz	41%	4	6	4	4	5	4	2	29/70
8	General Mills	40%	2	3	3	3	6	5	6	28/70
=9	Associated British Foods plc	36%	5	3	3	4	4	3	3	25/70
=9	DANONE	36%	2	2	3	3	6	5	4	25/70

Source: Oxfam, 2017b

Exhibit 7: Ethical Consumer's *Supermarket Ratings* Score Table

Score table

Ethical ratings for brands and products, updated live from our research database

Rollover an abbreviation for more information — Less Detail

Brand	Score out of 20	Environment					Animals			People					Politics					Product sustainability (+ve)				
		ER	CC	PT	H&S	RPO	AT	FF	AR	HR	WR	SC	MI	M ARM	CT	BC	PA	AS	FCE	O	F	E	S	A
Marks & Spencer supermarkets	6.5		●	●	●		●	●	●		●		●		●		●	●						
Co-op supermarkets	5		●	●	●	●	●	●	●	●	●		●		●		●	●	★					
Waitrose supermarkets	5	●	●	●	●		●	●	●	●	●		●		●			●	★					
Aldi Supermarkets	4.5		●	●	●	●	●	●	●	●	●	●	●		●									
Booths Supermarkets	4	●	●	●	●	●	●	●	●			●	●		●									
Ocado supermarket	4	●	●	●		●	●	●	●		●	●	●		●			●						
Spar supermarkets	3	●	●	●	●	●	●	●	●		●	●	●		●									
Morrisons Supermarkets	2.5	●	●	●	●	●	●	●	●	●	●	●	●		●	●		●						
Sainsbury's Supermarkets	2.5	●	●	●	●	●	●	●	●	●	●	●	●		●		●	●						
Lidl supermarkets	1.5	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●						
Tesco Supermarkets	1.5	●	●	●	●	●	●	●	●	●	●		●		●		●	●						
Iceland Supermarkets	1	●	●	●	●	●	●	●	●	●	●	●	●		●	●		●						
Asda Supermarkets	0	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●						

Source: Ethical Consumer (2017)